TOSHIBA

FILE NO. 020-200016

SERVICE MANUAL

COLOR TELEVISION

N0S Chassis

27A60, 32A60, 36A60

(TAC0020) (TAC0021) (TAC0022)

PUBLISHED IN JAPAN, Jun., 2000 (So)

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CHAPTER 1 GENERAL ADJUSTMENTS

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is (A) kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed (B) kV.

   Refer to table-1 for high voltage (A), (B).
   (See SETTING & ADJUSTING DATA on page 17)

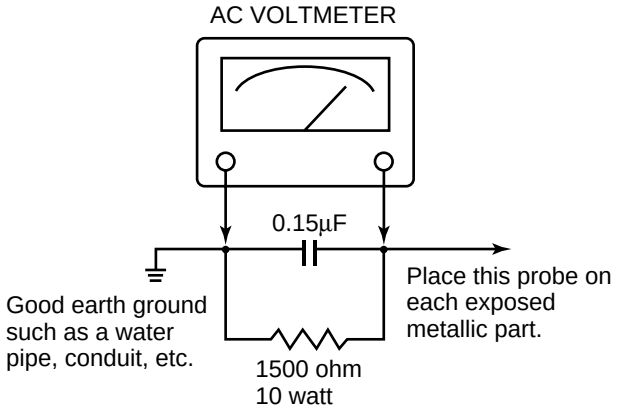
   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner:

   Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 µF, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 µF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts rms. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.


AC VOLTMETER
0.15µF
Good earth ground such as a water pipe, conduit, etc.
Place this probe on each exposed metallic part.
1500 ohm
10 watt

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE “X-RAY RADIATION PRECAUTION”, “SAFETY PRECAUTION” AND “PRODUCT SAFETY NOTICE” ON PAGE 3 OF THIS MANUAL.

SET-UP ADJUSTMENT (FOR 13”, 14”, 19”, 20”)

■ The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.
Mounting position of the purity magnet assembly should fit to same position as old one because slightly difference to the position depend on a kind of tube.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Set the brightness and contrast to maximum.
3. Use a green raster from among the built-in test signals.
4. Loosen the clamp screw holding the yoke and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (See figure 2.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, enter the raster vertically.
7. Slowly move the yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.

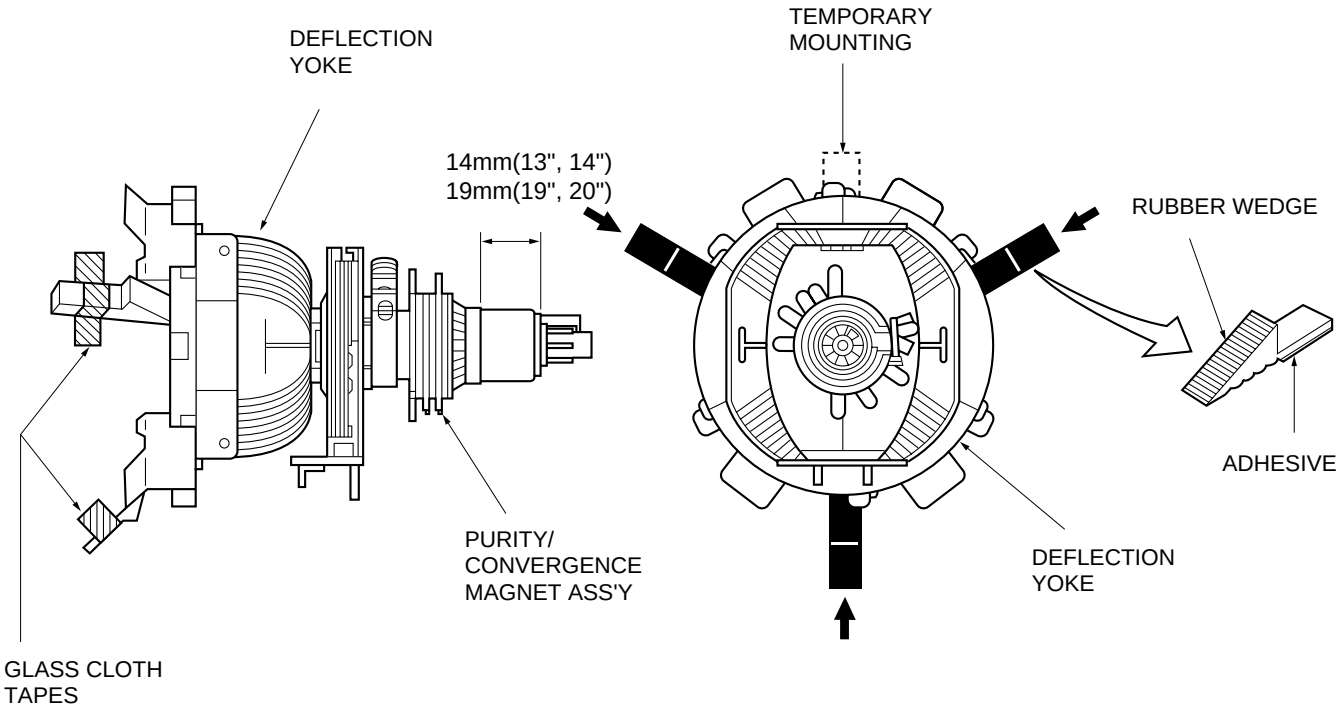


Figure 1.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ CENTER CONVERGENCE ADJUSTMENT

1. Use the cross-dot pattern from among the built-in test signals.
2. Set the brightness and contrast for well defined pattern.
3. Adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 2.) and superimpose red and blue vertical lines in the center area of the picture screen.
4. Turn the both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines at the center of the screen.
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets have mutual interaction and make dot movement complex.

■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

1. Loosen the clamping screw of deflection yoke slightly to allow the yoke to tilt.
2. Temporarily put a wedge as shown in figure 1. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See figure 3.) Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference. (See figure 3.)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. Stick three adhesive tapes on wedges as shown in figure 1.

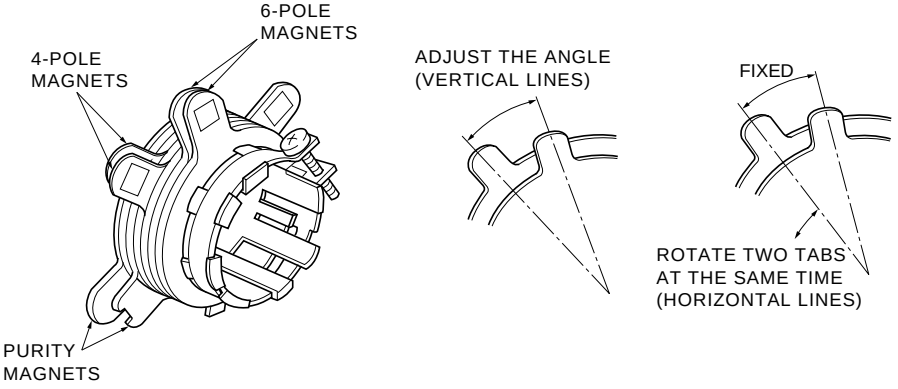
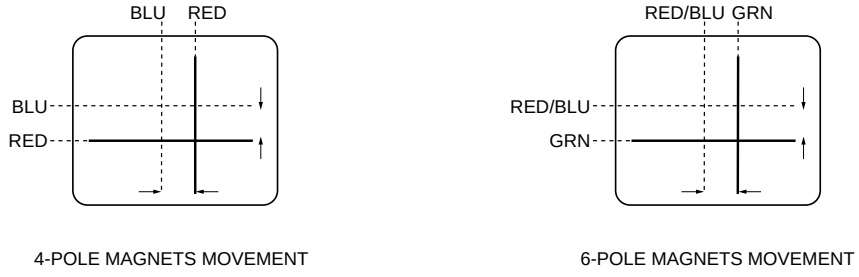


Figure 2.



Center Convergence by Convergence Magnets

Circumference Convergence by DEF Yoke

Figure 3. Dot Movement Pattern

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

(FOR 35", 36")

■ The following adjustments should be made when a complete realignment is required or a new picture tube is installed. Perform the adjustments in order as follows :

1. Color Purity
2. Convergence
3. White Balance

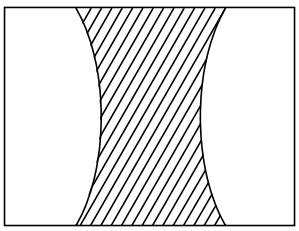
Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.
Mounting position of the purity magnet assembly should fit to same position as old one because slightly difference to the position depend on a kind of tube.

* There are no adjustment of purity and convergence in some picture tube (Unified with purity magnet)

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Evenly degauss the entire screen.
2. Set the CONTRAST and BRIGHTNESS Controls to the maximum.
3. Display built-in green raster using the TEST SIGNAL SELECTION function.
4. Loosen the clamp screw holding the deflection yoke (and remove the Rubber Wedges).
5. Slide the yoke forward or backward to provide vertical green belt (zone) in the picture screen.
6. Rotate and spread the tabs of the purity magnet (See figure 3.) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically by adjusting the magnet as shown below.



Green Belt

7. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster.
9. Put four wedges into the space between the picture tube and the yoke to hold the yoke in the adjusted position. (See figure 2.)
   Do not tilt the yoke by excessive insertion of the wedge.
10. Remove cover paper of wedge and stick wedges on the tube to fix the yoke in the adjusted position.
    Fix the wedges with glass cloth tapes.

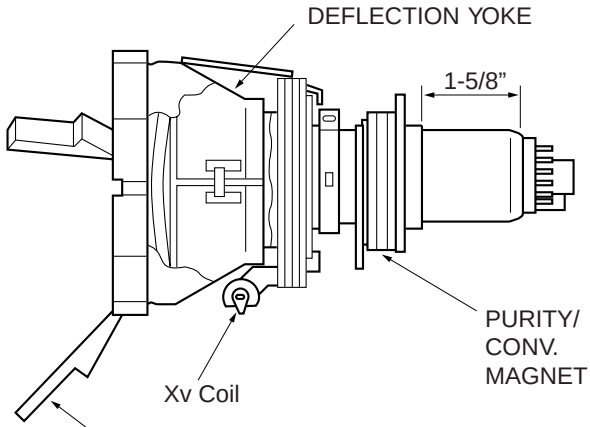


Figure 1.

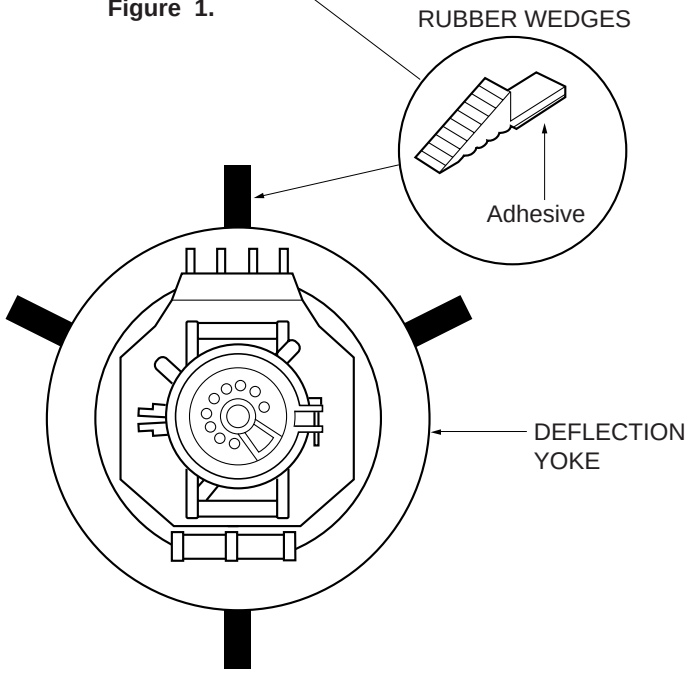


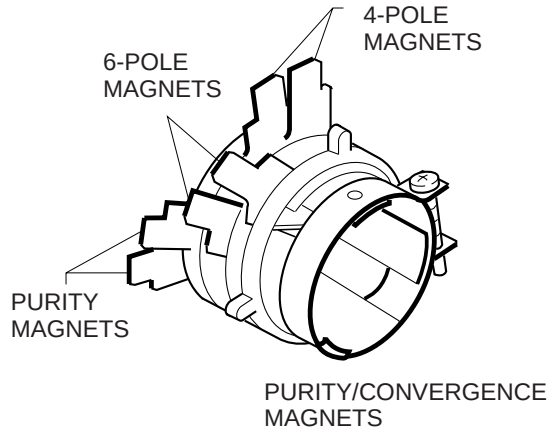
Figure 2.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

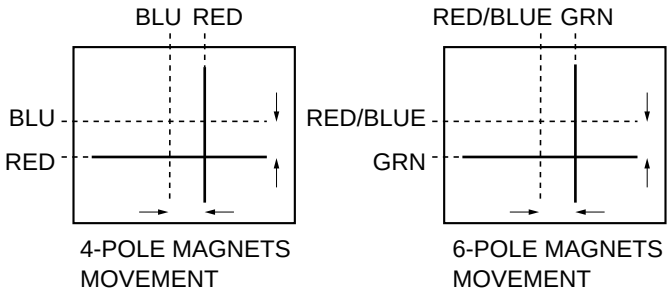
■ **CENTER CONVERGENCE ADJUSTMENT**

1. Display built-in cross-dot pattern using the TEST SIGNAL SELECTION function.
2. Adjust the BRIGHTNESS and CONTRAST Controls for well defined pattern.
3. Loosen the tightening ring and adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 3.) and superimpose red and blue vertical lines in the center area of the picture screen. (See figure 4.)
4. Turn the both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the centre of the screen. (See figure 4.)
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole magnets interact and make dot movement complex.
7. After completing the "CENTER CONVERGENCE ADJUSTMENT" tighten the tightening ring to fix the magnets.



ADJUSTMENT OF MAGNETS

Figure 3.



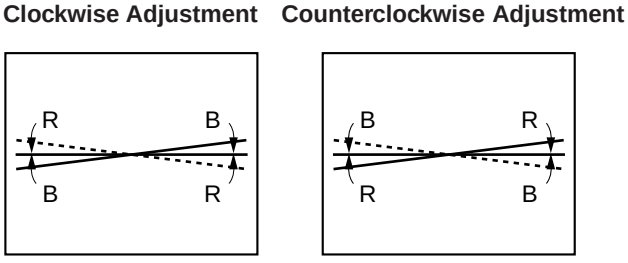
Center Convergence by Convergence Magnets

Figure 4.

■ **Xv COIL ADJUSTMENT**

Adjust the Xv coil (on the deflection yoke) to correct misconvergence at both sides on screen.

Use a hexagonal tip stick (plastic) to adjust the core of coil.

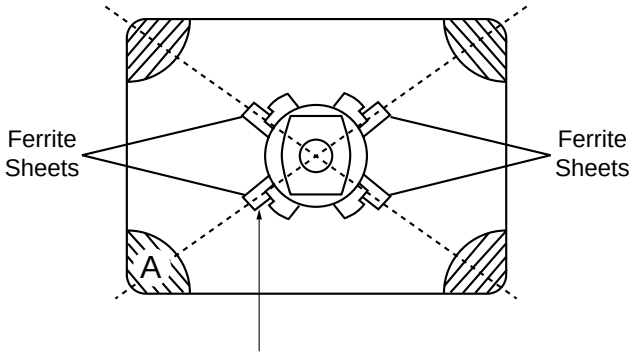


X_V Cross Pattern View

■ **SCREEN-CORNER CONVERGENCE**

When the misconvergence is still evident on corners even though the above adjustment is done, use the ferrite sheet (Part No. 23993622) to correct misconvergence.

1. Put ferrite sheets into the space under the yoke. Decide such position that misconvergence becomes minimum, watching picture screen. (See figure below.)
2. Remove cover paper of ferrite sheet to stick it in the place on the tube. Put adhesive tapes on ferrite sheets to fix.



SERVICE MODE

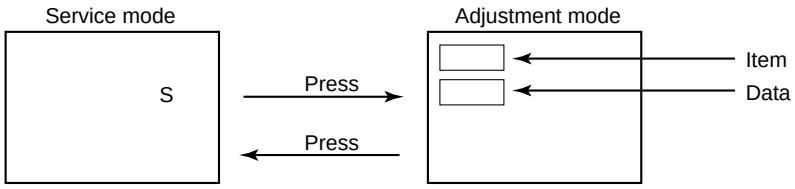
1. ENTERING TO SERVICE MODE

1) Press MUTE button once on Remote Control.
2) Press MUTE button again to keep pressing.
3) While pressing the MUTE button, press MENU button on TV set.

(Service mode display)

2. DISPLAYING THE ADJUSTMENT MENU

1) Press MENU button on TV.



3. KEY FUNCTION IN THE SERVICE MODE

The following key entry during display of adjustment menu provides special functions.

A single horizontal line ON/OFF:	TV (ANT)/VIDEO button (on TV)
Test signal selection :	TV (ANT)/VIDEO button (on Remote)
Selection of the adjustment items :	Channel ▲/▼ (on TV or Remote)
Change of the data value :	Volume ▲/▼ (on TV or Remote)
Adjustment menu mode ON/OFF :	MENU button (on TV)
Initialization of the memory (QA02) :	RECALL+Channel button on TV (▲)
Initialization of the self diagnostic data:	RECALL+Channel button on TV (▼)

“RCUT” selection :	1 button
“GCUT” selection :	2 button
“BCUT” selection :	3 button
“CNTX” selection :	4 button
“COLC” selection :	5 button
“TNTC” selection :	6 button
Test audio signal ON/OFF (1kHz) :	8 button
Self diagnostic display ON/OFF :	9 button

4. SELECTING THE ADJUSTING ITEMS

1) Every pressing of CHANNEL ▲ button in the service mode changes the adjustment items in the order of table-2. (▼ button for reverse order)

Refer to table-2 for preset data of adjustment mode.
(See SETTING & ADJUSTING DATA on page 17)

5. ADJUSTING THE DATA

1) Pressing of VOLUME ▲ or ▼ button will change the value of data in the range from 00H to FFH. The variable range depends on the adjusting item.

6. EXIT FROM SERVICE MODE

1) Pressing POWER button to turn off the TV once.

■ INITIALIZATION OF MEMORY DATA OF QA02

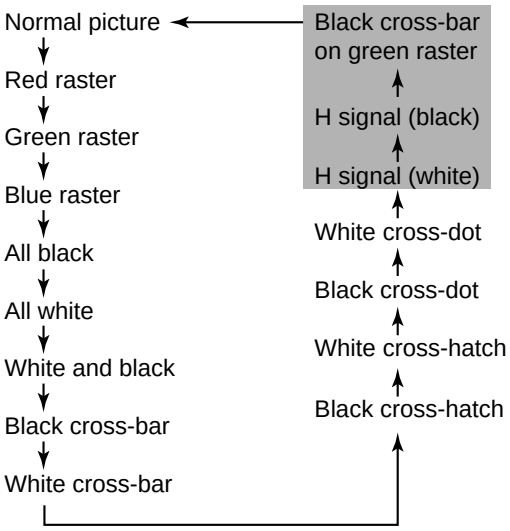
After replacing QA02, the following initialization is required.

1. Enter the service mode, then select any register item.
2. Press and hold the RECALL button on the Remote, then press the CHANNEL ▲ button on the TV. The initialization of QA02 has been complated.
3. Check the picture carefully. If necessary, adjust any adjustment item above. Perform “Programming Channel Memory” on the owner’s manual.

CAUTION: Never attempt to initialize the data unless QA02 has been replaced.

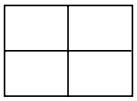
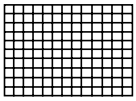
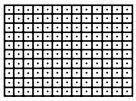
7. TEST SIGNAL SELECTION

1) Every pressing of TV/VIDEO button on the Remote Control in the Service mode, changes the built-in test patterns on screen in the following order.



2) Press “8” button while any built-in test pattern to on the screen to output the 1 kHz sound. Press the button again to cut off the sound.

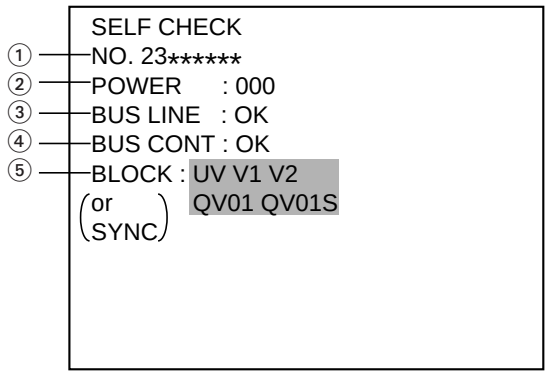
Note: If the video cable is connected to the VIDEO1 INPUT jack, the built-in pattern signals are not displayed.

Signals	Picture
• Red raster • Green raster • Blue raster • All Black • All White	
• Black & White	
• Black cross-bar • White cross-bar • Black cross-bar on green raster	
• Black cross-hatch • White cross-hatch	
• Black cross-dot • White cross-dot	
• H signal (white) • H signal (black)	

* The signals marked with ▒ are not usable to display in the Test signal for some model.

8. SELF DIAGNOSTIC FUNCTION

1) Press “9” button on Remote Control during display of adjustment menu in the service mode.
   The diagnosis will begin to check if interface among IC’s are executed properly.
2) During diagnosis, the following displays are shown.



① Part number of microprocessor (QA01)
② Operation number of protection circuit (current limiter) . . . . “000” is normal.
③ BUS line check
- “OK” ..... Normal
- “SCL-GND” ..... SCL-GND short circuit
- “SDA-GND” ..... SDA-GND short circuit
- “SCL-SDA” ..... SCL-SDA short circuit

④ BUS line ACK (acknowledge) check
- “OK” ..... Normal
- Display of Location Number . . . . NG
- (Display example)
- “QA02 NG”, “H001 NG”, “Q501 NG” etc.
- Note: The indication of failure place is only one place though failure places are plural. When repair of a failure place finishes, the next failure place is indicated. (The order of priority of indication is left side.)

⑤ Sync. signal check
- Green display ..... Normal
- Cyan display ..... No check
- Red display ..... NG

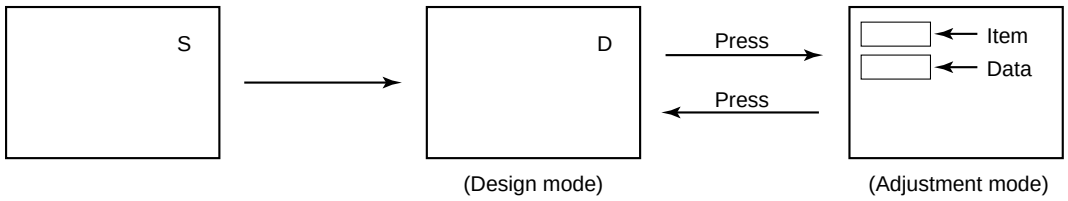
UV ..... TV mode
V1 ..... VIDEO 1 mode
V2 ..... VIDEO 2 mode

* The item marked with ■ are not usable to display in the SELF DIAGNOSTIC FUNCTION for some model.

DESIGN MODE

1. ENTERING TO DESIGN MODE

1) Select the Service mode. 2) While pressing RECALL button on Remote and press MENU button on TV. 3) Press MENU button on TV.



When QA02 is initialized, items “OPT0” and “OPT1” of DESIGN MODE are set to the data of the representative model of this chassis family.
Therefore, because ON-SCREEN specification remains in the state of the representative of model. This model is required to reset the data of items “OPT0” and “OPT1”.

2. SELECTING THE ADJUSTING ITEMS

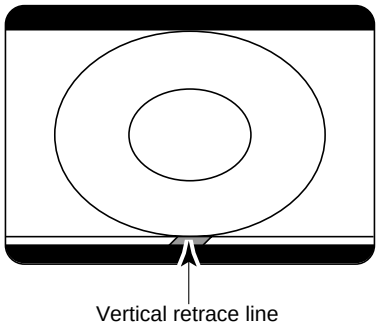
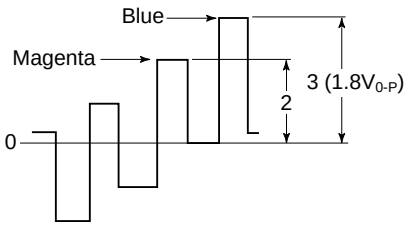
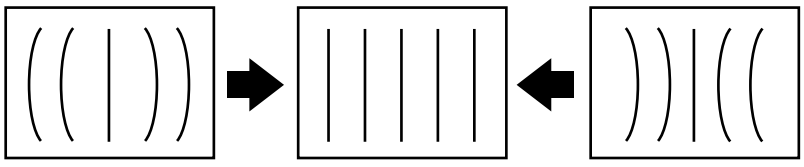
Every pressing of CHANNEL ▼ button in the design mode changes the adjustment items in the order of table-3.
(▲ button for reverse order)

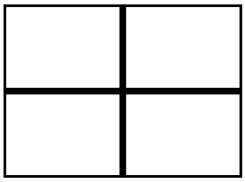
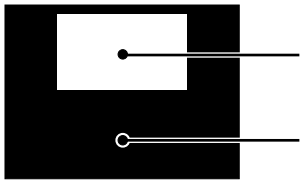
Refer to table-3 for data of design mode.
(See SETTING & ADJUSTING DATA on page 17)

3. ADJUSTING THE DATA

Pressing of VOLUME ▲ or ▼ button will change the value of data.

ELECTRICAL ADJUSTMENT

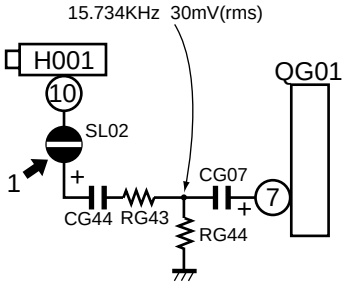
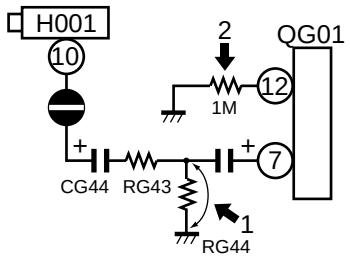
ITEM	ADJUSTMENT PROCEDURE
FOCUS VR ADJ	1. Enter the service mode, then select any register item. 2. Press the TV/VIDEO button on the Remote until the black cross-bar pattern appears on the screen. 3. Adjust the FOCUS control (on T461) for well defined scanning lines on the picture screen.
SUB-BRIGHTNESS (BRTC)	1. Constrict the picture height until the vertical retrace line appears adjusting the HEIGHT control on the MAIN board. 2. Adjust the CONTRAST to the minimum and BRIGHTNESS to the center. 3. Enter the service mode, then select "**BRTC**" register. 4. Adjust the data value so the belt of vertical retrace line just disappear. 5. Adjust the CONTRAST for the desired contrast. 6. Adjust the HEIGHT control. 
SUB-COLOR (COLC) SUB-TINT (TNTC)	1. Receive color-bar signal from color-bar generator. 2. Press the RESET button. 3. Connect oscilloscope to base of Q906 on CRT-D board. 4. Enter the service mode, then select "**COLC**". 5. Adjust the SUB-COLOR by pressing the VOLUME ▲ or ▼ button to achieve about $1V_{0\text{-}p}$ of blue bar. 6. Select "**TNTC**" register. 7. Adjust the data value to obtain the blue bar to magenta bar ratio of 3:2 as shown. 8. Select "**COLC**" register. 9. Adjust the data value to achieve $1.8V_{0\text{-}p}$ of blue bar on scope. 10. Check the picture with off-air signal. 
WIDTH (WID)	1. Call up the adjustment mode display, then select the item **WID**. 2. Press the VOLUME ▲ or ▼ button to get the picture so the left and right edges of raster begins to lack. 3. Press the VOLUME ▲ or ▼ button to advance the data by 7 steps. Note : Check the horizontal picture position is correct.
E-W PARABOLA (DPC)	1. Call up the adjustment mode display, then select the item **DPC**. 2. Press the TV/VIDEO button on Remote until the cross-hatch pattern appears on the screen. 3. Press the VOLUME ▲ or ▼ button to make vertical lines straight as shown below. 

<table>
<tr><th>ITEM</th><th>ADJUSTMENT PROCEDURE</th></tr>
<tr><td>HORIZONTAL POSITION
(HPOS)
VERTICAL POSITION
(VPOS)</td><td>1. Call up the adjustment mode display, then select the item HPOS or VPOS.
2. Press the TV/VIDEO button on Remote until the white cross-bar or black cross-bar pattern appears on the screen.
3. Adjust the HORIZONTAL and VERTICAL position alternately by pressing the VOLUME ▲ or ▼ button for proper picture position.
4. Check the picture with off-air signal.
  </td></tr>
<tr><td>HEIGHT
(HIT)</td><td>1. Call up the adjustment mode display, then select the item HIT.
2. Press the VOLUME ▲ or ▼ button to get the picture so the top of raster begins to lack.
3. Press the VOLUME ▲ button to advance the data by 9 steps.
Note : Check the vertical picture position is correct.</td></tr>
<tr><td>WHITE BALANCE
(RCUT)
(GCUT)
(BCUT)
(GDRV)
(BDRV)</td><td>1. Adjust the CONTRAST control to the center, and BRIGHTNESS control to the maximum.
2. Call up the adjustment mode display, and press the TV/VIDEO button on Remote until the white and black pattern appears on the screen.
3. Adjust the following item with the CHANNEL ▲/▼ and VOLUME ▲/▼ buttons.
RCUT ⟶ Data : 40H
GCUT ⟶ Data : 40H
BCUT ⟶ Data : 40H
GDRV ⟶ Data : 40H
BDRV ⟶ Data : 40H
4. Press the TV/VIDEO button on TV to display a single horizontal line on the screen.
5. Turn the SCREEN control (FBT) fully counterclockwise and gradually rotate clockwise until the first horizontal line appears slightly on the screen.
6. Press the TV/VIDEO button to display the normal picture.
7. Adjust the remaining two “?CUT” items (CHANNEL ▲/▼ → TV/VIDEO → VOLUME ▲/▼ in order) to obtain the slightly lighted horizontal line in the same levels of three (red, green, blue) colors. The line should be white if the adjustments are proper.
 
Bright area
Adjust "GDRV" or "BDRV" to be white.
Dark area
Fine adjust "RCUT", "GCUT" or "BCUT" to be black.</td></tr>
<tr><td>PIP SUB-BRIGHTNESS
(PBOF)</td><td rowspan="3">Adjust to match the PIP screen to the brightness, white balance and tint of the main picture.</td></tr>
<tr><td>PIP WHITE BALANCE
(PGOF, PROF)</td></tr>
<tr><td>PIP SUB-TINT
(PHUE)</td></tr>
</table>

MTS ADJUSTMENT (FOR N0S CHASSIS)

No.	ITEM	INPUT SIGNAL	ADJUSTMENT PROCEDURE
1	STEREO VCO (STVC)	• No signal	1. Display item **STVC**, and connect pin 9 of H002 to ground. 2. Connect frequency counter to pin 12 of H002. 3. Change data by Volume ▲/▼ buttons so that the reading of counter becomes value as close as 4fH (62.936kHz).
2	SAP VCO (SAVC)	• 78.670kHz 147mVrms → pin 9 of H002 • Monaural signal → ANT	1. Display item SAVC. 2. Change data by Volume ▲/▼ buttons so that the data becomes in the center of range for STA7=0 and STA8=1. SAVC 88H STA7:0 STA8:1
3	STEREO FILTER (STRF)	• 9.4kHz 600mVrm → pin 9 of H002 Monaural signal → ANT	1. Display item **STRF** on screen. 2. Change data by Volume ▲/▼ buttons so that the data becomes in the center of range for STA3=1. STRF 16H STA3:1
4	SAP FILTER (SAPF)	• 88kHz 110mVrms → pin 9 of H002 • Monaural signal → ANT	1. Display item **SAPF**. 2. Change data by Volume ▲/▼ buttons so that the data becomes in the center of range for STA4=1. SAPF 98H STA4:1
5	ATTENUATOR (ATT)	• 1kHz 30% mod. → ANT terminal	1. Connect rms meter to pin 12 of H002. 2. Display item **ATT** on screen. 3. Change data by Volume ▲/▼ buttons so that output at pin 12 of H002 becomes value as close as 130mVrms.
6	STEREO SEPARATION (WBAN)	• STEREO 300Hz R-channel only → ANT	1. Select “STEREO” mode from the MTS function in the Audio menu. 2. Display item **WBAN** on screen. 3. Connect oscilloscope to pin 14 of H002. 4. Change data by Volume ▲/▼ buttons so that 300Hz element on scope becomes minimum.
	(SPEC)	• STEREO 3kHz R-channel only → ANT	5. Display item **SPEC** on screen. 6. Change data by Volume ▲/▼ buttons so that 3kHz element on scope becomes minimum.

MTS ADJUSTMENT (FOR N0ES CHASSIS)

No.	ITEM	INPUT SIGNAL	ADJUSTMENT PROCEDURE
1	ATTENUATOR (ATT)	• 1kHz 30% mod. → ANT terminal	1. Connect rms meter to pin 34 of QG01. 2. Display item **ATT** on screen. 3. Change data by VOLUME ▲/▼ buttons so that the reading of meter becomes value as close as 137mVrms.
2	STEREO VCO (STVC)	• No signal	1. Short circuit RG44 with a jumper wire. 2. Display item **STVC** on screen. 3. Connect frequency counter to pin 34 of QG01. 4. Change data by VOLUME ▲/▼ buttons so that the reading of counter becomes value as close as 15.73kHz.
3	STEREO FILTER (STRF)	• 15.734kHz 30mV(rms) 	1. Unsolder the solder link SL02. 2. Display item **STRF** on screen. 3. Connect oscilloscope to pin 34 of QG01. 4. Change data by VOLUME ▲/▼ button to minimize AC output level on scope. 5. Resolder SL02.
4	STEREO SEPARATION (WBAN)	• STEREO 300Hz R-channel only → ANT	1. Display item **WBAN** on screen. 2. Connect oscilloscope to pin 35 of QG01. 3. Change data by VOLUME ▲/▼ buttons so that 300Hz element on scope becomes minimum.
	(SPEC)	• STEREO 3kHz R-channel only → ANT	4. Display item **SPEC** on screen. 5. Change data by Volume ▲/▼ buttons so that 3kHz element on scope becomes minimum.
5	SAP VCO (SAVC)	• No signal 	1. Shortcircuit RG44 with a short jumper. 2. Connect 1Mohm resistor between pin 12 of QG01 and ground. 3. Display item **SAVC** on screen. 4. Connect frequency counter to pin 34 of QG01. 5. Change data by VOLUME ▲/▼ buttons so that the reading of counter becomes value as close as 78.67kHz. 6. Remove the short jumper and 1M ohm resistor.

CIRCUIT CHECKS

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

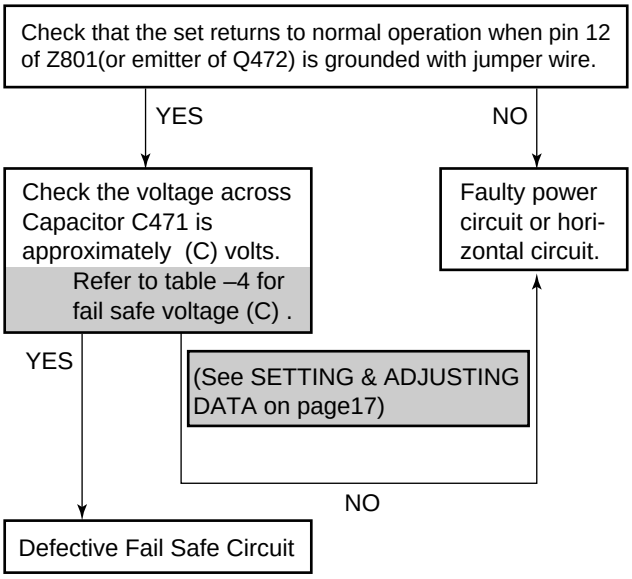
1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum (zero beam current).
3. High voltage must be measured below (B) kV.
   Refer to table-1 for high voltage (B).
   (See SETTING & ADJUSTING DATA on page 17)
4. Vary the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

FS CIRCUIT CHECK

The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on and press the RESET button.
2. Temporarily short TP-(R) and TP-(X) with a jumper wire. Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the power switch on to produce a normal picture.

Troubleshooting Guide for Fail Safe Circuit


Check that the set returns to normal operation when pin 12 of Z801(or emitter of Q472) is grounded with jumper wire.
YES
NO
Check the voltage across Capacitor C471 is approximately (C) volts.
Refer to table –4 for fail safe voltage (C) .
Faulty power circuit or horizontal circuit.
YES
(See SETTING & ADJUSTING DATA on page17)
NO
Defective Fail Safe Circuit

CHAPTER 2 SPECIFIC INFORMATIONS

SETTING & ADJUSTING DATA

【SAFETY INSTRUCTIONS】

		32"	36"	27"
HIGH VOLTAGE AT ZERO BEAM:	(A)	31.0kV	31.9kV	28.3kV
MAX HIGH VOLTAGE:	(B)	32.4 kV	33.3kV	29.7kV

Table-1

【SERVICE MODE】

ADJUSTING ITEMS AND DATAS IN THE SERVICE MODE:

Item	Name of adjustment	Preset	27"/32"	36"
RCUT	R CUTOFF	40H	←	←
GCUT	G CUTOFF	40H	←	←
BCUT	B CUTOFF	40H	←	←
GDRV	G DRIVE	40H	←	←
BDRV	B DRIVE	40H	←	←
SCNT	SUB-CONTRAST	08H	←	←
BRTC	SUB-BRIGHT	40H	←	←
COLC	SUB-COLOR	40H	←	←
TNTC	SUB-TINT	40H	←	←
SAVC	SAP VCO	88H	←	←
ATT	ATTENUATOR	08H	←	←
SAPF	SAP FILTER	88H	←	←
STVC	STEREO VCO	1CH	←	←
STRF	STEREO FILTER	16H	←	←
SPEC	SPECTRAL	30H	←	←
WBAN	STEREO SEPARATION	22H	←	←
HPOS	HORIZ. POSITION	16H	←	←
VPOS	VERT. POSITION	03H	←	←

Item	Name of adjustment	Preset	27"/32"	36"
HIT	HEIGHT	1EH	←	26H
LIN	V-LINEARITY	06H	06H	07H
VSC	V-S CORRECTION	04H	02H	02H
VPS	V-SHIFT	1BH	←	←
VCP	V-COMPENSATION	03H	←	←
WID	PICTURE WIDTH	18H	18H	35H
DPC	E-W PARABOLA (DPC)	0AH	0AH	17H
CNR	E-W CORNER	07H	07H	09H
TRAP	TRAPEZIUM	09H	09H	08H
HCP	H-COMPENSATION	00H	←	←
VFC	V-F CORRECTION	0FH	←	←
PCOL	PIP COLOR	0FH	←	←
PHUE	PIP TINT	11H	←	←
DAC	DAC	03H	←	←
PGOF	PIP	36H	←	←
PROF	PIP	17H	←	←
PBOF	PIP	17H	←	←
RGBB	RGB BRIGHT	0BH	←	←

Table-2

【DESIGN MODE】

ADJUSTING ITEMS AND DATAS IN THE DESIGN MODE:

Item	Name of adjustment	Preset Data	Data		Remarks
			27"/32"	36"	
OPT1	OPTION1	84H	84H	84H	
OPT2	OPTION2	01H	02H	02H	

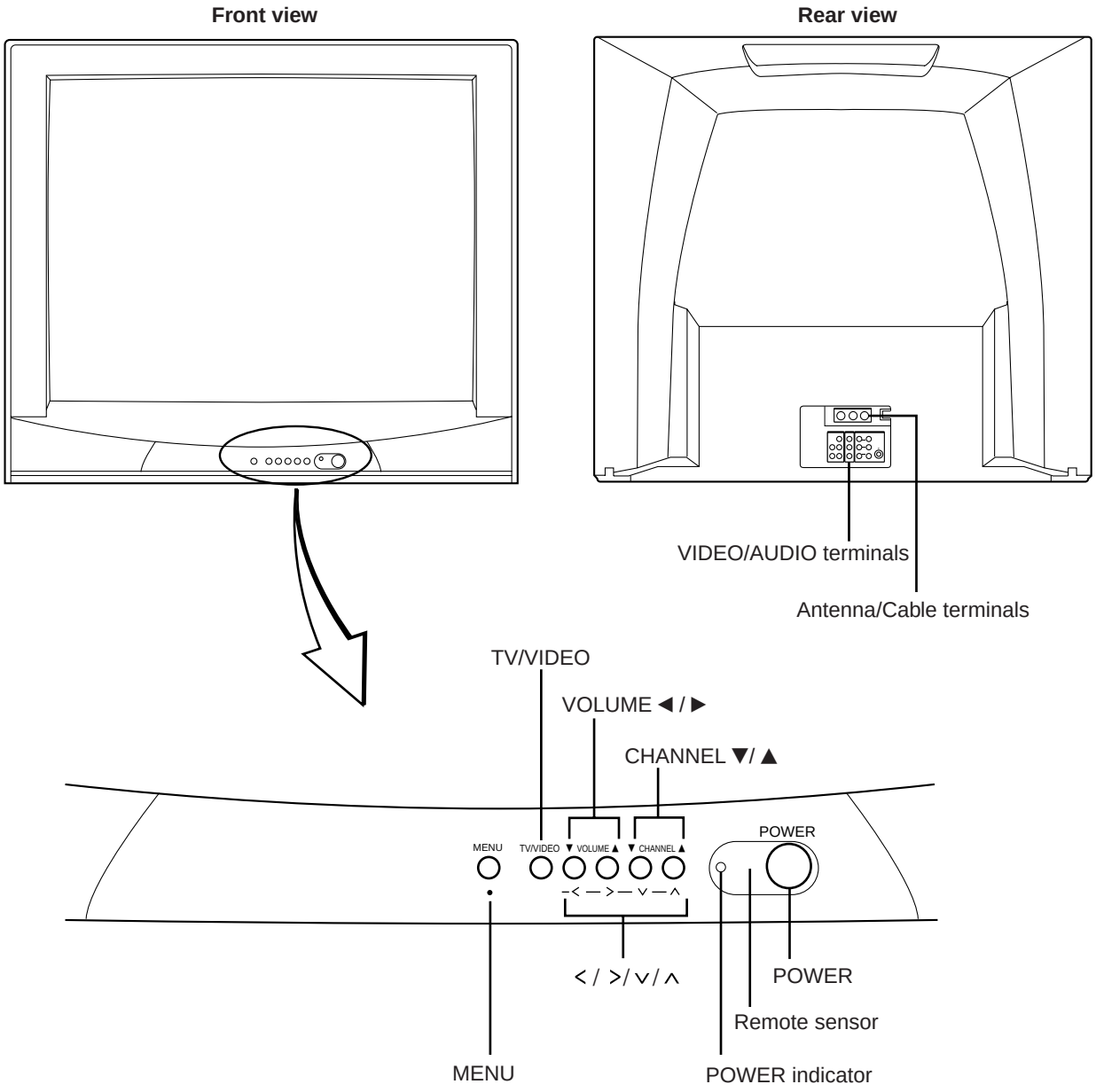
Table-3

【CIRCUIT CHECKS】

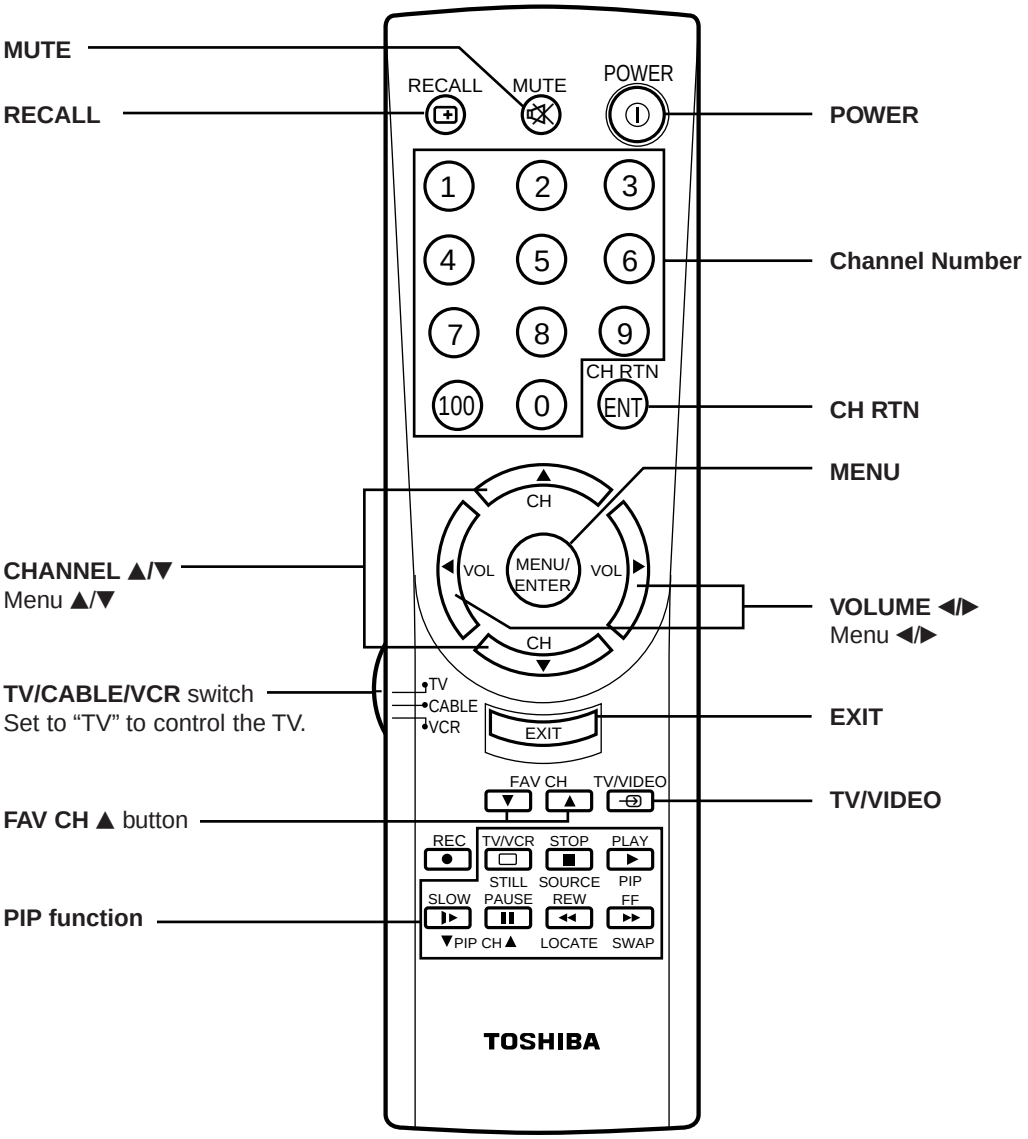
		32"	36"	27"
FBT DETECTION VOLTAGE	(C)	21.88 V	22.77V	21.5 V

Table-4

LOCATION OF CONTROLS (Representative: 36A60)



Remote Control



PROGRAMMING CHANNEL MEMORY

The channel memory is the list of TV channel numbers your TV will stop on when you press the CHANNEL ▲ or ▼ button.
First, use the TV/CABLE and CH PROGRAM functions to preset all active channels in your area automatically.
If necessary, arrange the preset channels with the ADD/ERASE functions so that you can tune into only desired channels.
Note: If you utilize both ANT-1 and ANT-2 terminals for some model, perform programming channels for each input source.

TV/CABLE function

1. Press **MENU**, then press ► or ◄ until the SET UP menu appears.
2. Press ▼ (or ▲) until “TV/CABLE” is highlighted.
3. Press ► or ◄ to highlight either “TV” or “CABLE”, whichever you use.

CH PROGRAM function

1. Select “CH PROGRAM” following steps 1 and 2 above.
2. Press ► or ◄ to start channel programming.
   The TV will automatically cycle through all the TV or CABLE channels selected by the TV/CABLE function, and store active channels in the channel memory.
3. When channel programming is complete, you will see the message to the right appears.
4. Press **CHANNEL** ▲ or ▼ to make sure the channel programming has been done properly.

ADD/ERASE function

After performing the CH PROGRAM function, you can add or erase specific channels.

1. Select the channel you want to erase using the **CHANNEL** ▲ or ▼ button, or select the channel you want to add using the **Channel Number** buttons.
2. Press **MENU**, then press ► or ◄ until the SET UP menu appears.
3. Press ▼ (or ▲) until “ADD/ERASE” is highlighted.
4. Press ► or ◄ :
   To erase the channel
   Press the button until “ERASE” is highlighted.

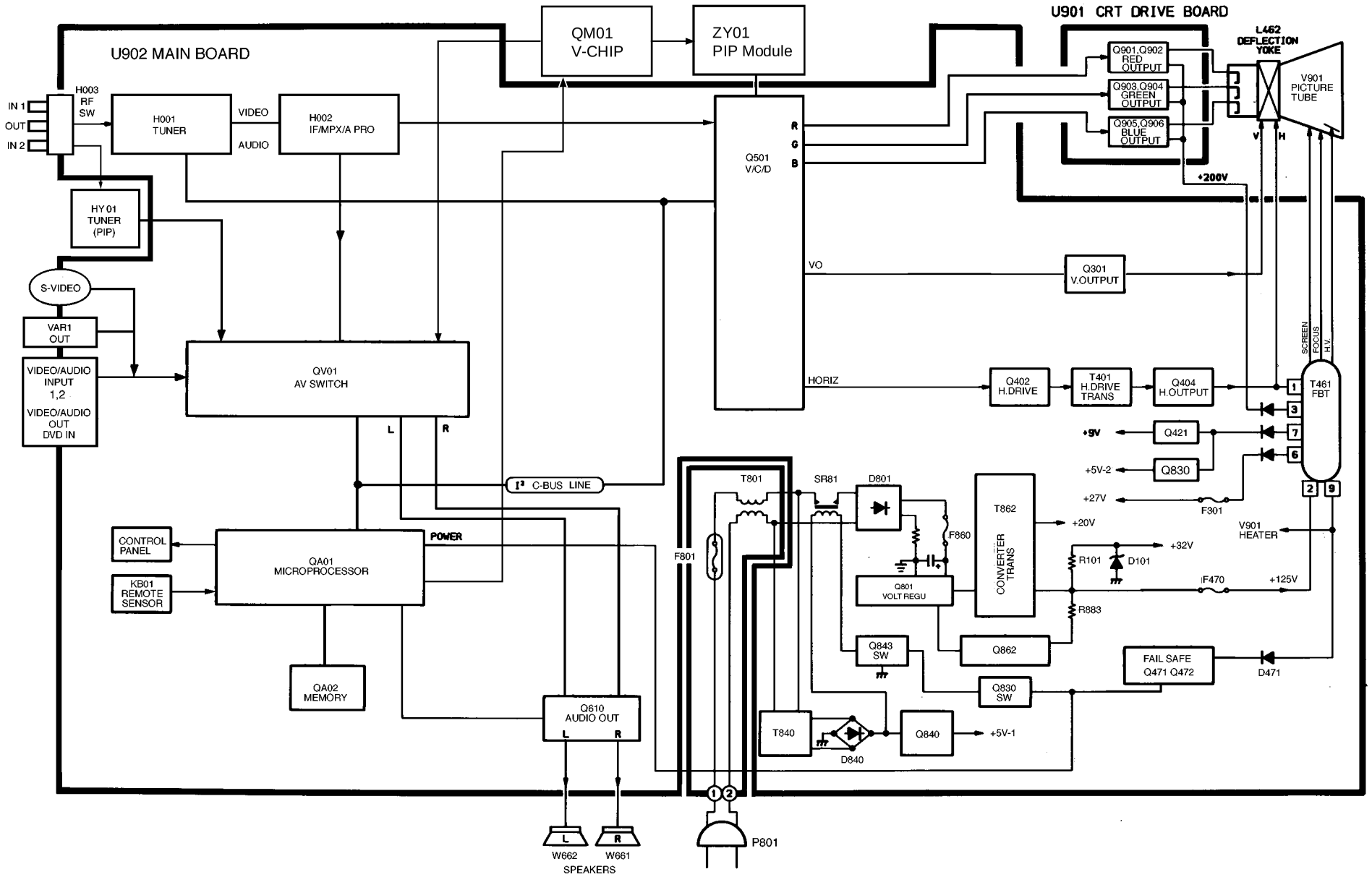
   To add the channel
   Press the button until “ADD” is highlighted.
5. Repeat steps 1 to 4 for other channels.

You have now completed the channel programming.

Note: The CHANNEL ▼/▲ buttons on the TV function as the ▼/▲ buttons while a menu is on the screen.

*Please refer to owner's manual in detil.

CIRCUIT BLOCK DIAGRAM



CHASSIS AND CABINET REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 3 OF THIS MANUAL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE. Do not degrade the safety of the receiver through improper servicing.

NOTICE:
- *The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.*
- *The PC board assembly with ∗ mark is no longer available after the end of the production.*

Model : 27A60, 32A60, 36A60

Capacitors	CD	:	Ceramic Disk	PF	:	Plastic Film	EL	: Electrolytic
Resistors	CF	:	Carbon Film	CC	:	Carbon Composition	MF	: Metal Film
	OMF	:	Oxide Metal Film	VR	:	Variable Resistor	FR	: Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C101	24796339	EL, 3.3μF, ±20%, 35V
C102	24793221	EL, 220μF, ±20%, 10V
C103	24794100	EL, 10μF, ±20%, 16V
C105	24212102	CD, 1000pF, ±10%
C106	24797479	EL, 4.7μF, ±20%, 50V
C107	24763221	EL, 220μF, ±20%, 16V
C110	24794470	EL, 47μF, ±20%, 16V
C112	24793101	EL, 100μF, ±20%, 10V
C115	24212102	CD, 1000pF, ±10%
C117	24763221	EL, 220μF, ±20%, 16V
C150	24794330	EL, 33μF, ±20%, 16V
C201	24539104	PF, 0.1μF
C204	24797010	EL, 1μF, ±20%, 50V
C205	24794100	EL, 10μF, ±20%, 16V
C207	24436270	CD, 27pF
C208	24436270	CD, 27pF
C209	24436270	CD, 27pF
C216	24797100	EL, 10μF, ±20%, 50V
C220	24797229	EL, 2.2μF, ±20%, 50V
C221	24232103	CD, 0.01μF, +80%, -20%
C222	24232103	CD, 0.01μF, +80%, -20%
C223	24232103	CD, 0.01μF, +80%, -20%
C224	24539104	PF, 0.1μF
C225	24539104	PF, 0.1μF
C226	24539104	PF, 0.1μF
C245	24206108	EL, 0.1μF, ±20%, 50V
C261	24539104	PF, 0.1μF
C262	24539104	PF, 0.1μF
C263	24539104	PF, 0.1μF
C305	24617912	EL, 2.2μF, ±10%, 50V (27A60/32A60)
C305	24617915	EL, 1μF, ±10%, 50V (36A60)
C306	24073058	EL, 2200μF, ±20%, 25V (27A60/32A60)
C306	24073059	EL, 3300μF, ±20%, 25V (36A60)
C307	24693273	PF, 0.027μF, 100V (27A60)
C307	24693473	PF, 0.047μF, 100V (32A60/36A60)
C308	24668221	EL, 220μF, ±20%, 35V

Location No.	Part No.	Description
C309	24591102	PF, 1000pF
C310	24796102	EL, 1000μF, ±20%, 35V
C311	24435820	CD, 82pF, 500V
C313	24082057	PF, 0.22μF, 100V
C314	24539473	PF, 0.047μF (27A60)
C314	24539104	PF, 0.1μF (32A60/36A60)
C317	24214471	CD, 470pF, ±10%, 500V
C319	24212102	CD, 1000pF, ±10%
C320	24668101	EL, 100μF, ±20%, 35V
C323	24538474	PF, 0.47μF
C325	24538683	PF, 0.068μF
C326	24539104	PF, 0.1μF
C327	24617915	EL, 1μF, ±10%, 50V
C337	24797229	EL, 2.2μF, ±20%, 50V
C360	24793221	EL, 220μF, ±20%, 10V
C361	24794101	EL, 100μF, ±20%, 16V
C403	24591103	PF, 0.01μF
C404	24797010	EL, 1μF, ±20%, 50V
C407	24591104	PF, 0.1μF (27A60)
C407	24539104	PF, 0.1μF (32A60/36A60)
C410	24532103	CD, 0.01μF, +80%, -20%
C413	24214821	CD, 820pF, ±10%, 500V
C415	24591273	PF, 0.027μF(27A60)
C415	24567273	PF, 0.027μF (32A60/36A60)
C416	24678010	EL, 1μF, ±20%, 200V
C417	24214391	CD, 390pF, ±10%, 500V
C421	24794101	EL, 100μF, ±20%, 16V
C430	24232103	CD, 0.01μF, +80%, -20%
C431	24794101	EL, 100μF, ±20%, 16V
C439	24829433	PF, 0.043μF, 400V (32A60)
C439	24829753	PF, 0.043μF, 400V (36A60)
⚠C440	24082928	PF, 7000pF, ±3%, 1500V (27A60)
⚠C440	24082958	PF, 7800pF, ±3%, 1500V (32A60)
⚠C440	24082959	PF, 8000pF, ±3%, 1500V (36A60)
⚠C442	24082922	PF, 0.47μF, 315V (27A60)
⚠C442	24082920	PF, 0.39μF, 315V (32A60)
⚠C442	24082921	PF, 0.43μF, 315V (36A60)

Location No.	Part No.	Description
⚠C444	24082956	PF, 7200pF, ±3%, 1500V (27A60)
⚠C444	24082611	PF, 6200pF, ±3%, 1800V (32A60)
⚠C444	24082610	PF, 5600pF, ±3%, 1800V (36A60)
C445	24828563	PF, 0.056μF, 200V
C446	24679100	EL, 10μF, ±20%, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C449	24666102	EL, 1000μF, ±20%, 16V
C457	24591222	PF, 2200pF
C463	24212152	CD, 1500pF, ±10%
C464	24640872	EL, 10μF, ±20%, 100V (32A60/36A60)
C466	24206108	EL, 0.1μF, ±20%, 50V (32A60/36A60)
⚠C467	24095881	PF, 0.018μF, ±3%, 630V (32A60)
⚠C467	24095883	PF, 0.015μF, ±3%, 630V (36A60)
C471	24797479	EL, 4.7μF, ±20%, 50V
C474	24794100	EL, 10μF, ±20%, 16V
C477	24591104	PF, 0.1μF (32A60/36A60)
C478	24591563	PF, 0.056μF(32A60)
C480	24747220	EL, 22μF, ±20%, 50V
C481	24538474	PF, 0.47μF
C482	24797478	EL, 0.47μF, ±20%, 50V
C499	24212102	CD, 1000pF, ±10%
C501	24436102	CD, 1000pF
C504	24591222	PF, 2200pF
C505	24353120	CD, 12pF, CH
C510	24763101	EL, 100μF, ±20%, 16V
C511	24232103	CD, 0.01μF, +80%, -20%
C512	24206228	EL, 0.22μF, ±20%, 50V
C582	24232103	CD, 0.01μF, +80%, -20%
C583	24762471	EL, 470μF, ±20%, 10V
C612	24794470	EL, 47μF, ±20%, 16V
C613	24232103	CD, 0.01μF, +80%, -20%
C661	24212102	CD, 1000pF, ±10%
C662	24212102	CD, 1000pF, ±10%
C663	24666100	EL, 10μF, ±20%, 16V
C671	24795470	EL, 47μF, ±20%, 25V
C672	24795470	EL, 47μF, ±20%, 25V
C673	24669229	EL, 2.2μF, ±20%, 50V
C674	24669229	EL, 2.2μF, ±20%, 50V
C675	24669229	EL, 2.2μF, ±20%, 50V
C676	24539104	PF, 0.1μF
C677	24539104	PF, 0.1μF
C678	24669229	EL, 2.2μF, ±20%, 50V
C679	24795470	EL, 47μF, ±20%, 25V
C681	24667102	EL, 1000μF, ±20%, 25V
C682	24668101	EL, 100μF, ±20%, 35V
C683	24667102	EL, 1000μF, ±20%, 25V
C801	24095670	PF, 0.22μF, ±20%, AC125V
C802	24095852	PF, 0.082μF, ±20%, AC125V
C805	24092623	CD, 0.01μF, +80%, -20%, AC250V
C806	24092623	CD, 0.01μF, +80%, -20%, AC250V
C808	24667221	EL, 220μF, ±20%, 25V
C810	24086061	EL, 470μF, ±20%, 200V
C811	24092597	CD, 4700pF, ±20%, AC250V
C811A	23960136	Adhesive, TSE3843-W
C812	24092597	CD, 4700pF, ±20%, AC250V

Location No.	Part No.	Description
C813	24092597	CD, 4700pF, ±20%, AC250V
C815	24092597	CD, 4700pF, ±20%, AC250V
C816	24092597	CD, 4700pF, ±20%, AC250V
C817	24092339	CD, 330pF, ±10%, 2kV
C818	24082402	PF, 2200pF, ±3%, 1250V
C821	24214471	CD, 470pF, ±10%, 500V
C822	24567104	PF, 0.1μF
C823	24212471	CD, 470pF, ±10%
C829	24591122	PF, 1200pF
C832	24794470	EL, 47μF, ±20%, 16V
C840	24795221	EL, 220μF, ±20%, 25V
C842	24792101	EL, 100μF, ±20%, 6.3V
C843	24797479	EL, 4.7μF, ±20%, 50V
C884	24086049	EL, 330μF, ±20%, 160V
C885	24214471	CD, 470pF, ±10%, 500V
C889	24796222	EL, 2200μF, ±20%, 35V
C891	24567104	PF, 0.1μF
C893	24092339	CD, 330pF, ±10%, 2kV
C898	24539224	PF, 0.22μF
C902	24092345	CD, 1000pF, ±10%, 2kV
C904	24436391	CD, 390pF
C905	24436391	CD, 390pF
C907	24436391	CD, 390pF
C909	24679220	EL, 22μF, ±20%, 250V
C910	24797478	EL, 0.47μF, ±20%, 50V
C911	24794100	EL, 10μF, ±20%, 16V
C912	24763471	EL, 470μF, ±20%, 16V
C913	24794100	EL, 10μF, ±20%, 16V
C914	24232103	CD, 0.01μF, +80%, -20%
C920	24214101	CD, 100pF, ±10%, 500V
C921	24232103	CD, 0.01μF, +80%, -20%
C922	24232103	CD, 0.01μF, +80%, -20%
CA13	24212101	CD, 100pF, ±10%
CA28	24539104	PF, 0.1μF
CA33	24232103	CD, 0.01μF, +80%, -20%
CA36	24212101	CD, 100pF, ±10%
CA37	24212101	CD, 100pF, ±10%
CA38	24212101	CD, 100pF, ±10%
CA42	24794100	EL, 10μF, ±20%, 16V
CA43	24232103	CD, 0.01μF, +80%, -20%
CA44	24232103	CD, 0.01μF, +80%, -20%
CA68	24794100	EL, 10μF, ±20%, 16V
CA69	24232103	CD, 0.01μF, +80%, -20%
CB01	24797470	EL, 47μF, ±20%, 50V
CB41	24763221	EL, 220μF, ±20%, 16V
CB48	24436101	CD, 100pF
CB60	24085944	EL, 2.2μF, ±20%, 50V, Non-Polar
CB61	24591102	PF, 1000pF
CB62	24436561	CD, 560pF
CB63	24591122	PF, 1200pF
CM15	24232103	CD, 0.01μF, +80%, -20%
CM33	24232103	CD, 0.01μF, +80%, -20%
CM40	24539104	PF, 0.1μF
CM41	24539104	PF, 0.1μF
CM42	24763101	EL, 100μF, ±20%, 16V
CM43	24232103	CD, 0.01μF, +80%, -20%
CM44	24232103	CD, 0.01μF, +80%, -20%
CM51	24539104	PF, 0.1μF
CM58	24539104	PF, 0.1μF
CM70	24085981	EL, 10μF, ±20%, 16V, Non-Polar
CM71	24436101	CD, 100pF
CM72	24794100	EL, 10μF, ±20%, 16V

Location No.	Part No.	Description
CM73	24794100	EL, 10μF, ±20%, 16V
CR01	24539104	PF, 0.1μF
CR02	24539104	PF, 0.1μF
CR03	24539104	PF, 0.1μF
CS02	24797229	EL, 2.2μF, ±20%, 50V
CS04	24797229	EL, 2.2μF, ±20%, 50V
CS08	24797229	EL, 2.2μF, ±20%, 50V
CS10	24797229	EL, 2.2μF, ±20%, 50V
CS14	24797229	EL, 2.2μF, ±20%, 50V
CS16	24797229	EL, 2.2μF, ±20%, 50V
CS32	24794100	EL, 10μF, ±20%, 16V
CS33	24794100	EL, 10μF, ±20%, 16V
CS40	24797010	EL, 1μF, ±20%, 50V
CS42	24797010	EL, 1μF, ±20%, 50V
CS43	24436331	CD, 330pF
CS44	24436331	CD, 330pF
CS45	24436331	CD, 330pF
CS46	24436331	CD, 330pF
CS47	24436331	CD, 330pF
CS48	24436331	CD, 330pF
CS51	24212102	CD, 1000pF, ±10%
CS52	24212102	CD, 1000pF, ±10%
CS70	24794220	EL, 22μF, ±20%, 16V
CS71	24794220	EL, 22μF, ±20%, 16V
CV01	24206108	EL, 0.1μF, ±20%, 50V
CV03	24206108	EL, 0.1μF, ±20%, 50V
CV05	24232103	CD, 0.01μF, +80%, -20%
CV07	24591223	PF, 0.022μF
CV09	24206108	EL, 0.1μF, ±20%, 50V
CV11	24232103	CD, 0.01μF, +80%, -20%
CV13	24206108	EL, 0.1μF, ±20%, 50V
CV29	24232103	CD, 0.01μF, +80%, -20%
CV31	24206108	EL, 0.1μF, ±20%, 50V
CV36	24794220	EL, 22μF, ±20%, 16V
CV38	24763471	EL, 470μF, ±20%, 16V
CV39	24232103	CD, 0.01μF, +80%, -20%
CV41	24591223	PF, 0.022μF
CV45	24232103	CD, 0.01μF, +80%, -20%
CV46	24794101	EL, 100μF, ±20%, 16V
CV47	24794100	EL, 10μF, ±20%, 16V
CV48	24232103	CD, 0.01μF, +80%, -20%
CV49	24794100	EL, 10μF, ±20%, 16V
CV60	24763471	EL, 470μF, ±20%, 16V
CV61	24762471	EL, 470μF, ±20%, 10V
CZ03	24092442	Chip, 0.47μF, +80%, -20%, 16V
CZ05	24814103	Chip, 0.01μF, +80%, -20%
CZ07	24092178	Chip, 0.1μF, ±10%, 25V
CZ09	24781220	Chip, 22pF, SL
CZ10	24781100	Chip, 10pF, ±0.5pF%, SL
CZ11	24781220	Chip, 22pF, SL
CZ12	24814103	Chip, 0.01μF, +80%, -20%
CZ13	24814103	Chip, 0.01μF, +80%, -20%
CZ14	24203100	EL, 10μF, ±20%, 16V
CZ17	24814103	Chip, 0.01μF, +80%, -20%
CZ19	24781181	Chip, 180pF, SL
CZ20	24814103	Chip, 0.01μF, +80%, -20%
CZ21	24781122	Chip, 1200pF, SL
CZ22	24203100	EL, 10μF, ±20%, 16V
CZ23	24814103	Chip, 0.01μF, +80%, -20%
CZ24	24814103	Chip, 0.01μF, +80%, -20%
CZ25	24203100	EL, 10μF, ±20%, 16V
CZ26	24814103	Chip, 0.01μF, +80%, -20%
CZ28	24814103	Chip, 0.01μF, +80%, -20%
CZ29	24814103	Chip, 0.01μF, +80%, -20%
CZ30	24203100	EL, 10μF, ±20%, 16V
CZ31	24092178	Chip, 0.1μF, ±10%, 25V
CZ32	24781150	Chip, 15pF, SL
CZ33	24781390	Chip, 39pF, SL
CZ34	24781150	Chip, 15pF, SL
CZ35	24781390	Chip, 39pF, SL
CZ37	24203100	EL, 10μF, ±20%, 16V
CZ38	24203100	EL, 10μF, ±20%, 16V
CZ41	24781470	Chip, 47pF, SL
CZ42	24781470	Chip, 47pF, SL
CZ45	24781100	Chip, 10pF, ±0.5pF%, SL

RESISTORS

R101	24382223	OMF, 22k ohm, 1W
R102	24366123	CF, 12k ohm
R151	24366562	CF, 5600 ohm
R152	24366103	CF, 10k ohm
R201	24366102	CF, 1k ohm
R202	24366102	CF, 1k ohm
R203	24366474	CF, 470k ohm
R207	24366101	CF, 100 ohm
R208	24366101	CF, 100 ohm
R209	24366101	CF, 100 ohm
R216	24366223	CF, 22k ohm
R223	24366102	CF, 1k ohm
R228	24366683	CF, 68k ohm (27A60)
R228	24366473	CF, 47k ohm (32A60/36A60)
R238	24366473	CF, 47k ohm
R239	24366274	CF, 270k ohm
R240	24366562	CF, 5600 ohm
R241	24366682	CF, 6800 ohm
R245	24366104	CF, 100k ohm
R261	24366472	CF, 4700 ohm
R262	24366102	CF, 1k ohm
R263	24366472	CF, 4700 ohm
R264	24366102	CF, 1k ohm
R265	24366472	CF, 4700 ohm
R266	24366102	CF, 1k ohm
R271	24366101	CF, 100 ohm
R272	24366222	CF, 2200 ohm
R275	24366103	CF, 10k ohm
R301	24366102	CF, 1k ohm
R303	24321109	MF, 1 ohm, 1/2W
R304	24366473	CF, 47k ohm (27A60)
R304	24366393	CF, 39k ohm (32A60)
R304	24366623	CF, 62k ohm (36A60)
R305	24322758	MF, 0.75 ohm, 1W (27A60)
R305	24322688	MF, 0.68 ohm, 1W (32A60)
R305	24322828	MF, 0.82 ohm, 1W (36A60)
R306	24366273	CF, 27k ohm (27A60)
R306	24366563	CF, 56k ohm (32A60)
R306	24366683	CF, 68k ohm (36A60)
R307	24366824	CF, 820k ohm (27A60)
R307	24366474	CF, 470k ohm (32A60)
R307	24366684	CF, 680k ohm (36A60)
R308	24383391	OMF, 390 ohm, 2W (27A60/32A60)
R308	24383821	OMF, 820 ohm, 2W (36A60)
R309	24553221	OMF, 220 ohm, 1W (27A60)
R309	24553181	OMF, 180 ohm, 1W (32A60)
R309	24553271	OMF, 270 ohm, 1W (36A60)
R310	24366153	CF, 15k ohm
R311	24366392	CF, 3900 ohm

Location No.	Part No.	Description
R313	24366243	CF, 24k ohm (27A60)
R313	24366104	CF, 100k ohm (32A60/36A60)
R314	24366105	CF, 1M ohm
R315	24366824	CF, 820k ohm
R317	24366102	CF, 1k ohm
R327	24339479	MF, 4.7 ohm, 2W (27A60/36A60)
R327	24339569	MF, 5.6 ohm, 2W (32A60)
R328	24366564	CF, 560k ohm (27A60)
R328	24366824	CF, 820k ohm (32A60)
R328	24366684	CF, 680k ohm (36A60)
R336	24383391	OMF, 390 ohm, 2W (27A60)
R336	24383221	OMF, 220 ohm, 2W (32A60/36A60)
R360	24366104	CF, 100k ohm
R361	24366473	CF, 47k ohm
R363	24366105	CF, 1M ohm (36A60)
R364	24366103	CF, 10k ohm (36A60)
R368	24545479	FR, 4.7 ohm, 1/4W
R369	24366391	CF, 390 ohm
R401	24366391	CF, 390 ohm
R403	24366622	CF, 6200 ohm
R405	24382682	OMF, 6800 ohm, 1W
R406	24366104	CF, 100k ohm
R407	24366103	CF, 10k ohm
R408	24366472	CF, 4700 ohm
R410	24366271	CF, 270 ohm
R411	24366151	CF, 150 ohm (27A60)
R411	24366561	CF, 560 ohm (32A60/36A60)
R415	24553272	OMF, 2700 ohm, 1W
R416	24510332	Cement, 3k ohm, 5W (27A60)
R416	24510432	Cement, 4300 ohm, 5W (32A60/36A60)
R418	24383181	OMF, 180 ohm, 2W
R424	24546828	FR, 0.82 ohm, 1/2W
R425	24366561	CF, 560 ohm
R430	24366102	CF, 1k ohm
R431	24366103	CF, 10k ohm
R432	24366202	CF, 2k ohm
R433	24366102	CF, 1k ohm
R441	24532102	FR, 1k ohm, 1W (32A60/36A60)
R442	24532102	FR, 1k ohm, 1W (27A60)
R448	24338478	MF, 0.47 ohm, 1W
R456	24366103	CF, 10k ohm
R457	24366104	CF, 100k ohm
R460	24366333	CF, 33k ohm (32A60/36A60)
R461	24366393	CF, 39k ohm (32A60/36A60)
R462	24366561	CF, 560 ohm (32A60/36A60)
R463	24322479	MF, 4.7 ohm, 1W (32A60/36A60)
R464	24366102	CF, 1k ohm (32A60/36A60)
R465	24366682	CF, 6800 ohm (32A60/36A60)
R466	24366103	CF, 10k ohm (32A60/36A60)
R472	24382270	OMF, 27 ohm, 1W
R473	24366473	CF, 47k ohm (32A60/36A60)
R474	24366184	CF, 180k ohm (32A60/36A60)
⚠R475	24366181	CF, 180 ohm (27A60)
⚠R475	24366391	CF, 390 ohm (32A60/36A60)
R476	24366823	CF, 82k ohm
R477	24366273	CF, 27k ohm
⚠R478	24327133	MF, 13k ohm, ±1%, 1/4W
R481	24366333	CF, 33k ohm

Location No.	Part No.	Description
⚠R482	24327562	MF, 5600 ohm, ±1%, 1/4W (27A60)
⚠R482	24327472	MF, 4700 ohm, ±1%, 1/4W (32A60/36A60)
R485	24338568	MF, 0.56 ohm, 1W
R486	24552820	OMF, 82 ohm, 1/2W
R487	24552301	OMF, 300 ohm, 1/2W
R488	24327183	MF, 18k ohm, ±1%, 1/4W
R489	24327183	MF, 18k ohm, ±1%, 1/4W
R490	24366102	CF, 1k ohm
R493	24366102	CF, 1k ohm
R494	24366471	CF, 470 ohm
R495	24366561	CF, 560 ohm (27A60)
R495	24366560	CF, 56 ohm (32A60/36A60)
R498	24510279	Cement, 2.7 ohm, 5W (27A60)
R501	24366333	CF, 33k ohm
R502	24366101	CF, 100 ohm
R503	24366101	CF, 100 ohm
R511	24366102	CF, 1k ohm
R512	24366102	CF, 1k ohm
R612	24366103	CF, 10k ohm
R613	24366222	CF, 2200 ohm
R614	24366102	CF, 1k ohm
R661	24366182	CF, 1800 ohm
R662	24366182	CF, 1800 ohm
R663	24366682	CF, 6800 ohm
R664	24366682	CF, 6800 ohm
R667	24366223	CF, 22k ohm
R668	24366103	CF, 10k ohm
R669	24366103	CF, 10k ohm
R676	24366229	CF, 2.2 ohm
R677	24366229	CF, 2.2 ohm
R808	24000862	PTC Thermistor, 7 ohm, ±20%, 140V
R810	24569828	Cement, 0.82 ohm, ±10%, 10W
R814	24366103	CF, 10k ohm
R815	24552332	OMF, 3300 ohm, 1/2W
R818	24323479	MF, 4.7 ohm, 2W
R820	24322208	MF, 0.2 ohm, 1W
R821	24552470	OMF, 47 ohm, 1/2W
R823	24366152	CF, 1500 ohm
R829	24004945	MF, 0.18 ohm, 1W
R830	24548569	FR, 4.7 ohm, 2W
R831	24366561	CF, 560 ohm
R835	24552681	OMF, 680 ohm, 1/2W
R861	24553153	OMF, 15k ohm, 1W
R883	24366471	CF, 470 ohm
R884	24366471	CF, 470 ohm
R888	24321228	MF, 0.22 ohm, 1/2W
R891	24366102	CF, 1k ohm
R898	24002000	CC, 3.9M ohm, ±10%, 1/2W
R901	24552102	OMF, 1k ohm, 1/2W
R902	24552102	OMF, 1k ohm, 1/2W
R903	24552102	OMF, 1k ohm, 1/2W
R904	24366103	CF, 10k ohm
R905	24366101	CF, 100 ohm
R911	24366150	CF, 15 ohm
R914	24366561	CF, 560 ohm
R915	24366221	CF, 220 ohm (27A60)
R915	24366301	CF, 300 ohm (32A60/36A60)
R917	24366102	CF, 1k ohm
R918	24366820	CF, 82 ohm
R920	24000945	FR, 1.8 ohm, 2W (27A60)

Location No.	Part No.	Description
R920	24000880	FR, 5.1 ohm, 1W (32A60)
R920	24000961	FR, 2.2 ohm, 2W (36A60)
R921	24366561	CF, 560 ohm
R922	24366221	CF, 220 ohm (27A60)
R922	24366301	CF, 300 ohm (32A60/36A60)
R924	24366820	CF, 82 ohm
R925	24366102	CF, 1k ohm
R928	24366561	CF, 560 ohm
R929	24366221	CF, 220 ohm (27A60)
R929	24366301	CF, 300 ohm (32A60/36A60)
R930	24366820	CF, 82 ohm
R932	24366272	CF, 2700 ohm
R934	24366391	CF, 390 ohm
R935	24366821	CF, 820 ohm
R936	24366750	CF, 75 ohm
R937	24366102	CF, 1k ohm
R939	24366101	CF, 100 ohm
R942	24366562	CF, 5600 ohm
R943	24366562	CF, 5600 ohm
R944	24366562	CF, 5600 ohm
R960	24383153	OMF, 15k ohm, 2W
R961	24383153	OMF, 15k ohm, 2W
R962	24383153	OMF, 15k ohm, 2W
R977	24366122	CF, 1200 ohm
R980	24366471	CF, 470 ohm
R981	24366821	CF, 820 ohm
R982	24366103	CF, 10k ohm
R983	24366222	CF, 2200 ohm
R984	24367152	CF, 1500 ohm, ±2%
R985	24367471	CF, 470 ohm, ±2%
R986	24367681	CF, 680 ohm, ±2%
R987	24367681	CF, 680 ohm, ±2%
R988	24367472	CF, 4700 ohm, ±2%
R989	24367472	CF, 4700 ohm, ±2%
R990	24366222	CF, 2200 ohm
R991	24367681	CF, 680 ohm, ±2%
RA02	24366102	CF, 1k ohm
RA03	24366102	CF, 1k ohm
RA04	24366102	CF, 1k ohm
RA05	24366102	CF, 1k ohm
RA06	24366102	CF, 1k ohm
RA07	24366102	CF, 1k ohm
RA08	24366102	CF, 1k ohm
RA09	24366102	CF, 1k ohm
RA10	24366103	CF, 10k ohm
RA13	24366103	CF, 10k ohm
RA14	24366102	CF, 1k ohm
RA15	24366102	CF, 1k ohm
RA16	24366102	CF, 1k ohm
RA17	24366102	CF, 1k ohm
RA18	24366102	CF, 1k ohm
RA21	24366102	CF, 1k ohm
RA22	24366331	CF, 330 ohm
RA23	24366331	CF, 330 ohm
RA24	24366331	CF, 330 ohm
RA25	24366331	CF, 330 ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA33	24366103	CF, 10k ohm
RA34	24366102	CF, 1k ohm
RA35	24366102	CF, 1k ohm
RA36	24366103	CF, 10k ohm
RA37	24366331	CF, 330 ohm
RA38	24366331	CF, 330 ohm

Location No.	Part No.	Description
RA40	24366101	CF, 100 ohm
RA41	24366101	CF, 100 ohm
RA61	24366103	CF, 10k ohm
RA62	24366103	CF, 10k ohm
RA67	24366472	CF, 4700 ohm
RA68	24366472	CF, 4700 ohm
RA71	24366683	CF, 68k ohm
RA72	24366223	CF, 22k ohm
RA73	24366103	CF, 10k ohm
RA74	24366333	CF, 33k ohm
RA99	24366223	CF, 22k ohm
RB01	24366271	CF, 270 ohm
RB03	24366101	CF, 100 ohm
RB09	24366470	CF, 47 ohm
RB11	24366103	CF, 10k ohm
RB21	24366472	CF, 4700 ohm
RB22	24366122	CF, 1200 ohm
RB23	24366222	CF, 2200 ohm
RB24	24366472	CF, 4700 ohm
RB25	24366472	CF, 4700 ohm
RB30	24366103	CF, 10k ohm
RB40	24366103	CF, 10k ohm
RB41	24366152	CF, 1500 ohm
RB42	24366102	CF, 1k ohm
RB43	24366103	CF, 10k ohm
RB44	24366103	CF, 10k ohm
RB45	24366181	CF, 180 ohm
RB46	24366101	CF, 100 ohm
RB47	24366332	CF, 3300 ohm
RB48	24366473	CF, 47k ohm
RB49	24366332	CF, 3300 ohm
RB60	24366301	CF, 300 ohm
RB61	24366244	CF, 240k ohm
RB62	24366133	CF, 13k ohm
RB63	24366392	CF, 3900 ohm
RB64	24366103	CF, 10k ohm
RB65	24366103	CF, 10k ohm
RG02	24366101	CF, 100 ohm
RG03	24366101	CF, 100 ohm
RM25	24366223	CF, 22k ohm
RM33	24366103	CF, 10k ohm
RM35	24366102	CF, 1k ohm
RM36	24366102	CF, 1k ohm
RM37	24366101	CF, 100 ohm
RM38	24366101	CF, 100 ohm
RM40	24366101	CF, 100 ohm
RM41	24366101	CF, 100 ohm
RM57	24366223	CF, 22k ohm
RM70	24366153	CF, 15k ohm
RM71	24366153	CF, 15k ohm
RM72	24366332	CF, 3300 ohm
RM73	24366332	CF, 3300 ohm
RR01	24366102	CF, 1k ohm
RR02	24366472	CF, 4700 ohm
RR03	24366102	CF, 1k ohm
RR04	24366472	CF, 4700 ohm
RR05	24366102	CF, 1k ohm
RR06	24366472	CF, 4700 ohm
RR07	24366681	CF, 680 ohm
RR08	24366682	CF, 6800 ohm
RR93	24366472	CF, 4700 ohm
RS02	24366682	CF, 6800 ohm
RS04	24366682	CF, 6800 ohm
RS08	24366682	CF, 6800 ohm

Location No.	Part No.	Description
RS10	24366682	CF, 6800 ohm
RS14	24366682	CF, 6800 ohm
RS16	24366682	CF, 6800 ohm
RS28	24366472	CF, 4700 ohm
RS40	24366101	CF, 100 ohm
RS42	24366101	CF, 100 ohm
RS60	24366101	CF, 100 ohm
RS61	24366222	CF, 2200 ohm
RS62	24366101	CF, 100 ohm
RS63	24366222	CF, 2200 ohm
RS64	24366102	CF, 1k ohm
RS65	24366102	CF, 1k ohm
RS66	24366102	CF, 1k ohm
RS68	24366223	CF, 22k ohm
RS69	24366223	CF, 22k ohm
RS70	24366104	CF, 100k ohm
RS71	24366104	CF, 100k ohm
RV01	24366750	CF, 75 ohm
RV02	24366750	CF, 75 ohm
RV03	24366750	CF, 75 ohm
RV04	24366750	CF, 75 ohm
RV07	24366103	CF, 10k ohm
RV08	24366102	CF, 1k ohm
RV17	24366101	CF, 100 ohm
RV18	24366681	CF, 680 ohm
RV19	24366101	CF, 100 ohm
RV20	24366101	CF, 100 ohm
RV60	24552101	OMF, 100 ohm, 1/2W
RV61	24366101	CF, 100 ohm
RV62	24366750	CF, 75 ohm
RV63	24366221	CF, 220 ohm
RW01	24366750	CF, 75 ohm
RW02	24366750	CF, 75 ohm
RW03	24366750	CF, 75 ohm
RZ01	24872102	Chip, 1k ohm, 1/16W
RZ02	24872102	Chip, 1k ohm, 1/16W
RZ03	24872332	Chip, 3300 ohm, 1/16W
RZ04	24872122	Chip, 1200 ohm, 1/16W
RZ05	24872471	Chip, 470 ohm, 1/16W
RZ06	24872821	Chip, 820 ohm, 1/16W
RZ08	24872122	Chip, 1200 ohm, 1/16W
RZ09	24872101	Chip, 100 ohm, 1/16W
RZ10	24872471	Chip, 470 ohm, 1/16W
RZ12	24872332	Chip, 3300 ohm, 1/16W
RZ13	24872122	Chip, 1200 ohm, 1/16W
RZ14	24872821	Chip, 820 ohm, 1/16W
RZ15	24872821	Chip, 820 ohm, 1/16W
RZ17	24872471	Chip, 470 ohm, 1/16W
RZ18	24872122	Chip, 1200 ohm, 1/16W
RZ19	24872332	Chip, 3300 ohm, 1/16W
RZ20	24872101	Chip, 100 ohm, 1/16W
RZ22	24872471	Chip, 470 ohm, 1/16W
RZ29	24872331	Chip, 330 ohm, 1/16W
RZ30	24872331	Chip, 330 ohm, 1/16W

COILS & TRANSFORMERS

L101	23289220	Coil, Peaking, TRF4220AF
L111	23289220	Coil, Peaking, TRF4220AF
L113	23289220	Coil, Peaking, TRF4220AF
L121	23238562	Coil, Peaking, TRF4109AJ
L122	23238562	Coil, Peaking, TRF4109AJ
L301	23103880	Coil (Ferrite Bead), TEM2011Y
L400	23238714	Coil, Peaking, TRF4100AJ
⚠L441	23233072	Coil, Linearity, TLN2115G (27A60)
⚠L441	23233941	Coil, Linearity, TLN2157G (32A60)
⚠L441	23233979	Coli, Linearity, TLN2206AG (36A60)
L442	23248122	Coil, Choke, TLN3384D (32A60)
L442	23248121	Coil, Choke, TLN3383D (36A60)
⚠L461	23248115	Coil, Choke, TLN3367D (32A60)
⚠L461	23248179	Coil, Choke, TLN3339AD (36A60)
L501	23289844	Coil, Peaking, TRF4470AT
L805	23248227	Coil, Choke, TLN3481AD
L806	23248227	Coil, Choke, TLN3481AD
L815	23103880	Coil (Ferrite Bead), TEM2011Y
L883	23103880	Coil (Ferrite Bead), TEM2011Y
L885	23248073	Coil, Choke, TLN3299D
L886	23103880	Coil (Ferrite Bead), TEM2011Y
L901	23200789	Coil, Degaussing, TSB-2205A (27A60)
L901	23200631	Coil, Degaussing, TSB-2304AT (32A60)
L901	23200335	Coil, Degaussing, TSB-2362CP (36A60)
L902	23289221	Coil, Peaking, TRF4221AF
L903	23289221	Coil, Peaking, TRF4221AF
L904	23289221	Coil, Peaking, TRF4221AF
L910	23237991	Coil, Peaking, TRF4479AC
LA01	23289100	Coil, Peaking, TRF4100AF
LM02	23289840	Coil, Peaking, TRF4100AT
LV01	23289840	Coil, Peaking, TRF4100AT
LV45	23289840	Coil, Peaking, TRF4100AT
LV98	23103852	Coil, Filter, TEM2028AH
LV99	23103852	Coil, Filter, TEM2028AH
LZ01	23238710	Coil, Peaking, TRF4220AJ
LZ02	23238714	Coil, Peaking, TRF4100AJ
LZ03	23238714	Coil, Peaking, TRF4100AJ
LZ04	23238714	Coil, Peaking, TRF4100AJ
LZ05	23238714	Coil, Peaking, TRF4100AJ
LZ08	23238707	Coil, Peaking, TRF4390AJ
LZ11	23238710	Coil, Peaking, TRF4220AJ
LZ12	23238710	Coil, Peaking, TRF4220AJ
T401	23224367	Transformer, Horiz. Drive, TLN1098AH
⚠T461	23236579	Transformer, Flyback, TFB4151AD (27A60)
⚠T461	23236540	Transformer, Flyback, TFB4132ED (32A60/36A60)
T801	23211708	Line Filter, TRF3223AK
T840	23213513	Transformer, Power, TPW1459AZ
T862	23217460	Transformer, Converter, TPW3445AE

SEMICONDUCTORS

Q151	23114530	Transistor, 2SA933S-Q
Q152	23114528	Transistor, 2SC1740S, Q
Q202	23114528	Transistor, 2SC1740S, Q
Q203	23114528	Transistor, 2SC1740S, Q
Q204	A6002040	Transistor, RN1204
Q205	A6002040	Transistor, RN1204

Location No.	Part No.	Description
Q301	B0378560	IC, TA8427K
Q301B	72471082	Screw, BRDT2W3X10 SZN
Q360	23114528	Transistor, 2SC1740S, Q (36A60)
Q361	23314445	Transistor, 2SC4721, Q
Q402	A6330069	Transistor, 2CS2482 FA-1
Q403	23314444	Transistor, 2SC4721P
Q404	A6873702	Transistor, 2SD2539 (27A60)
Q404	23314955	2SD2553(FA) (32A60/36A60)
Q404B	72471082	Screw, BRDT2W3X10 SZN
Q421	23314141	Transistor, 2SC3852
Q421B	70391356	Screw, BITTB3X10 SZN
Q460	23314938	Transistor, 2SD2493(P) (32A60/36A60)
Q461	23114530	Transistor, 2SA933S-Q (32A60/36A60)
Q471	A6534020	Transistor, 2SA1015-O
Q472	23114528	Transistor, 2SC1740S, Q
Q480	A6532853	Transistor, 2SA949-Y(C)
Q481	23114528	Transistor, 2SC1740S, Q
Q482	23114528	Transistor, 2SC1740S, Q
Q483	A6012010	Transistor, RN2201
Q610	B01A0068	IC, TA8265K
Q610B	70391356	Screw, BITTB3X10 SZN
Q611	A6342200	Transistor, 2CS2878-A
Q612	23314962	Transistor, KTA1266 Y
Q613	A6342200	Transistor, 2CS2878-A
Q801	23135012	IC, STR-G6624
Q801B	72471082	Screw, BRDT2W3X10 SZN
Q830	23314141	Transistor, 2SC3852
Q830B	23035308	Screw, BTB3X8SZN
Q840	23318299	IC, L78MR05
Q843	A6002050	Transistor, RN1205
Q862	A8643135	Photo Coupler, TLP621(GRL)
⚠ Q883	A6907894	IC, S1854A(FA4)
Q901	A6368700	Transistor, 2CS4544
Q902	A6317440	Transistor, 2SC1815-Y
Q903	A6368700	Transistor, 2CS4544
Q904	A6317440	Transistor, 2SC1815-Y
Q905	A6368700	Transistor, 2CS4544
Q906	A6317440	Transistor, 2SC1815-Y
Q907	23114530	Transistor, 2SA933S-Q
Q908	A6321240	Transistor, 2SC2120-Y
Q910	23114528	Transistor, 2SC1740S, Q
Q911	23114528	Transistor, 2SC1740S, Q
Q912	23114530	Transistor, 2SA933S-Q
Q913	23114530	Transistor, 2SA933S-Q
Q914	23114528	Transistor, 2SC1740S, Q
QA01	23000407	IC, TMP88CS38N-1B18
QA02	23905665	IC, AT24C08-10PC
QB01	23114528	Transistor, 2SC1740S, Q
QB03	A6002050	Transistor, RN1205
QB22	A6734590	Transistor, 2SC752(G)TM-Y
QB23	23114528	Transistor, 2SC1740S, Q
QB30	23114528	Transistor, 2SC1740S, Q
QB40	23114528	Transistor, 2SC1740S, Q
QB41	23114528	Transistor, 2SC1740S, Q
QB60	23114530	Transistor, 2SA933S-Q
QB61	23114528	Transistor, 2SC1740S, Q
QM02	23114530	Transistor, 2SA933S-Q
QM03	70119743	IC, PST523D
QS60	23314965	Transistor, KTC3198 Y
QS61	23314965	Transistor, KTC3198 Y
QS62	A6012040	Transistor, RN2204

Location No.	Part No.	Description
QS63	A6342200	Transistor, 2CS2878-A
QS64	A6342200	Transistor, 2CS2878-A
QV01	23906364	IC, MM1313BD
QV02	23904943	IC, MM1111XS
QV14	23114530	Transistor, 2SA933S-Q
QV60	23114528	Transistor, 2SC1740S, Q
QZ01	B0410895	IC, TC90A49P
QZ02	A6541130	Transistor, 2SA1162-Y
QZ03	A6541130	Transistor, 2SA1162-Y
QZ04	A6541130	Transistor, 2SA1162-Y
QZ05	A6335470	Transistor, 2SC2712-Y
QZ06	A6541130	Transistor, 2SA1162-Y
QZ07	A6541130	Transistor, 2SA1162-Y
QZ08	A6335470	Transistor, 2SC2712-Y
D101	23316411	Diode, Zener, HZT33-12
D201	23118859	Diode, 1SS133
D221	23118859	Diode, 1SS133
D222	23118859	Diode, 1SS133
D223	23118859	Diode, 1SS133
D224	23118859	Diode, 1SS133
D252	23316686	Diode, Zener, MTZJ9.1A
D253	23316686	Diode, Zener, MTZJ9.1A
D301	23118095	Diode, ERB44-06, E
D302	23118095	Diode, ERB44-06, E
D308	23118822	Diode, ERB12-02
D309	23118822	Diode, ERB12-02
D310	23118859	Diode, 1SS133
D313	23118859	Diode, 1SS133
D314	23118859	Diode, 1SS133 (36A60)
D315	23118859	Diode, 1SS133 (36A60)
D316	23316673	Diode, Zener, MTZJ5.6C
D406	23118094	Diode, EU2A, LF-F10
D408	A7580658	Diode, 3JH41
D409	23316690	Diode, Zener, MTZJ10B
D411	23316684	Diode, Zener, MTZJ8.2B
D421	23316665	Diode, Zener, MTZJ4.7A
D422	23316669	Diode, Zener, MTZJ5.1B
D430	23316720	Diode, Zener, MTZJ12C
D441	23316687	Diode, Zener, MTZJ9.1B
D461	23316582	Diode, ERC20-06 (32A60/36A60)
D464	23316648	Diode, Zener, MTZJ2.2A (32A60/36A60)
D466	23316653	Diode, Zener, MTZJ2.7B (36A60)
D467	23118095	Diode, ERB44-06, E (36A60)
D471	23118095	Diode, ERB44-06, E
⚠ D472	23115774	Diode, Zener, RD6.2E(4)
D473	23118859	Diode, 1SS133
D480	23316727	Diode, Zener, MTZJ16A
D611	23118859	Diode, 1SS133
D612	23118859	Diode, 1SS133
D801	23316391	Diode, D3SB60, 4109
D805	23118859	Diode, 1SS133
D806	23118094	Diode, EU2A
D807	23118859	Diode, 1SS133
D810	23316269	Diode, AK04
D815	23316746	Diode, Zener, MTZJ27B
D830	23316673	Diode, Zener, MTZJ5.6C
D840	23316962	Diode, S1WBA20 4101
D845	23118859	Diode, 1SS133
D881	23118859	Diode, 1SS133
D883	23118338	Diode, RU-4AM LF-L1
⚠ D884	23316721	Diode, Zener, MTZJ13A

Location No.	Part No.	Description
D885	23118052	Diode, RU4Z LF-L1
D899	24019471	Varistor, TNR10V271K2
D901	23118859	Diode, 1SS133
D902	23118859	Diode, 1SS133
D903	23118859	Diode, 1SS133
D904	23118859	Diode, 1SS133
D905	23118859	Diode, 1SS133
D906	23118859	Diode, 1SS133
D911	23118095	Diode, ERB44-06, E
DA42	23118529	Diode, Zener, RD5.6ESA B2
DB03	23358522	Diode (LED), SIR-56SB3F
DB30	23118859	Diode, 1SS133
DB45	23118859	Diode, 1SS133
DE50	23358501	Diode (LED), SCL003URC5F
DM01	23316675	Diode, Zener, MTZJ6.2B
DV01	23316686	Diode, Zener, MTZJ9.1A
DV03	23316686	Diode, Zener, MTZJ9.1A
DV05	23316686	Diode, Zener, MTZJ9.1A
DV13	23316686	Diode, Zener, MTZJ9.1A
DV45	23316686	Diode, Zener, MTZJ9.1A

MISCELLANEOUS

B110	23470538	Back Termial Board
B230	23037310	Screw, BTBW 3X10 SZN
B231	23035412	Screw, BTB 4X12 SZN
B232	23035312	Screw, BTB 3X12 SZN
BB01	23903022	Socket, 8P
BB02	23903022	Socket, 8P
BB03	23903022	Socket, 8P
BB11	23903022	Socket, 8P
BB22	23903022	Socket, 8P
BB33	23903022	Socket, 8P
BB111	23368627	Plug, 8P
BB222	23368627	Plug, 8P
BB333	23368627	Plug, 8P
F301	23144908	Fuse, 0.5A, 125V
F301A	23165433	Holder, Fuse
F470	23144785	Fuse, 1.25A, 125V
F470A	23165433	Holder, Fuse
F801	23144888	Fuse, 5.0A, 125V
F801A	23165433	Holder, Fuse
F802	23144511	Fuse, 4.0A, 125V
G060	24366470	CF, 47 ohm
G104	23289470	Coil, Peaking, TRF4470AF
G105	24366221	CF, 220 ohm
G106	24366221	CF, 220 ohm
G217	24366223	CF, 22k ohm (27A60)
G217	24366333	CF, 33k ohm (32A60/36A60)
G317	23118859	Diode, 1SS133 (36A60)
G405	24214472	CD, 4700pF, ±10%, 500V
G463	23103880	Coil (Ferrite Bead), TEM2011Y (32A60/36A60)
G500	23289840	Coil, Peaking, TRF4100AT
G816	23103880	Coil (Ferrite Bead), TEM2011Y
G890	23280016	Coil, Peaking, TRF4100AZ
G891	23280016	Coil, Peaking, TRF4100AZ
G908	23289100	Coil, Peaking, TRF4100AF
G916	24366101	CF, 100 ohm (27A60)
G933	24366750	CF, 75 ohm
G945	24366101	CF, 100 ohm (27A60)
G946	24366101	CF, 100 ohm (27A60)
H002	23148271	Module, MVUS33A, US IMA
H003	23344420	RF Switch, RSU133X5
H003A	23740989	Nut, F-Connector

Location No.	Part No.	Description
KB01	23906805	Remote Sensor, PIC-TB17
P801	23372112	Power Cord
P900	23164724	Plug, 3P (36A60)
P910	23164725	Plug, 2P
PV01	23365818	Jack, SVHS
PV02	23365948	Jack, 9P
PV03	23365949	Jack, 5P
PZ01	23368130	Plug, B-B,10P
PZ01A	23902213	Socket, B-B, 10P
SA01	23145227	Switch, Push, 1C1P
SA02	23145227	Switch, Push, 1C1P
SA03	23145227	Switch, Push, 1C1P
SA04	23145227	Switch, Push, 1C1P
SA05	23145227	Switch, Push, 1C1P
SA06	23145227	Switch, Push, 1C1P
SA07	23145227	Switch, Push, 1C1P
SR81	23146564	Relay, DC12V
SR81A	23960136	Adhesive, TSE3843-W
V901A	23902068	Socket, CRT, 10P
W661	23351088	Speaker, SPK-1360, 60X120mm, 8 ohm
W662	23351088	Speaker, SPK-1360, 60X120mm, 8 ohm
X401	23153721	Ceramic Resonator, 503kHz, TCR1023
X501	23153961	Crystal, 3.58MHz
XA01	23153504	Ceramic Resonator, 8.00MHz, TCR1056BM
XM01	23153325	Ceramic Resonator, 8.00MHz, TCR1056
ZY01	23148731	Module, MKMP33, MULTI PICTURE PNT

PC BOARD ASSEMBLIES

＊U901		CRT Drive Board, PB8642C (27A60)
＊U901		CRT Drive Board, PB8642A (32A60)
＊U901		CRT Drive Board, PB8642B (36A60)
＊U902		Main Board, PB9361C (27A60)
＊U902		Main Board, PB9361A (32A60)
＊U902		Main Board, PB9361B (36A60)
＊U903		V-CHIP Board, PB8688B
＊U904		PIP/TIF Board, PB9362A
＊U905		DIG COM Board, PB9398

PICTURE TUBE

⚠V901	23312649	Picture Tube, A68ADT28X04 (27A60)
⚠V901	23312690	Picture Tube, A81AGZ50X01V (32A60)
⚠V901	23312713	Picture Tube, A90AHH50X02V (36A60)

TUNER

H001	23321378	Tuner, ELA52LX1
HY01	23321379	Tuner, EL955LX1

ACCESSORIES

K912	23306359	Remote Hand Unit, CT-90037
AT03	23588307	Battery Cover

Location No.	Part No.	Description
Y101	23563915	Owner's Manual, English, 27A60/32A60/36A60
Y101F	23563916	Owner's Manual, French, 27A60/32A60/36A60

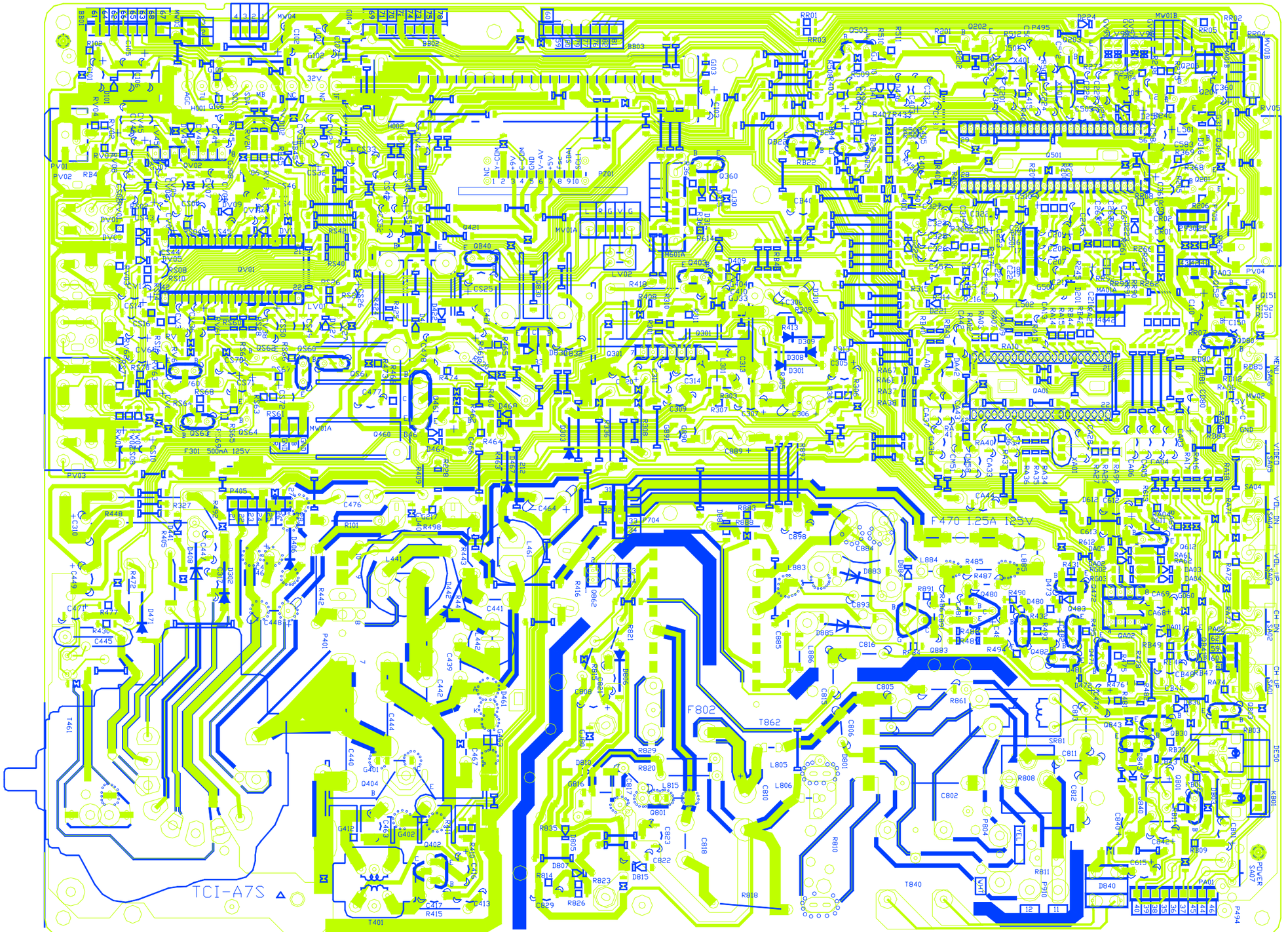
CABINET PARTS

A201	23549714	Front Cover (27A60)
A201	23549928	Front Cover (32A60)
A201	23510497	Front Cover (36A60)
A411	23540106	Back Cover (27A60)
A411	23549930	Back Cover (32A60)
A431	23427321	Back Cover (36A60)
A701	23524502	Container (27A60)
A701	23525037	Container (32A60)
A701	23064057	Case (36A60)
A703	23935996	Packing, Top (27A60)
A703	23946024	Packing, Top (32A60)
A703	23935769	Packing, Top (36A60)
A708	23935997	Packing, Bottom (27A60)
A708	23946025	Packing, Bottom (32A60)
A708	23935954	Packing, Bottom (36A60)

Location No.	Part No.	Description

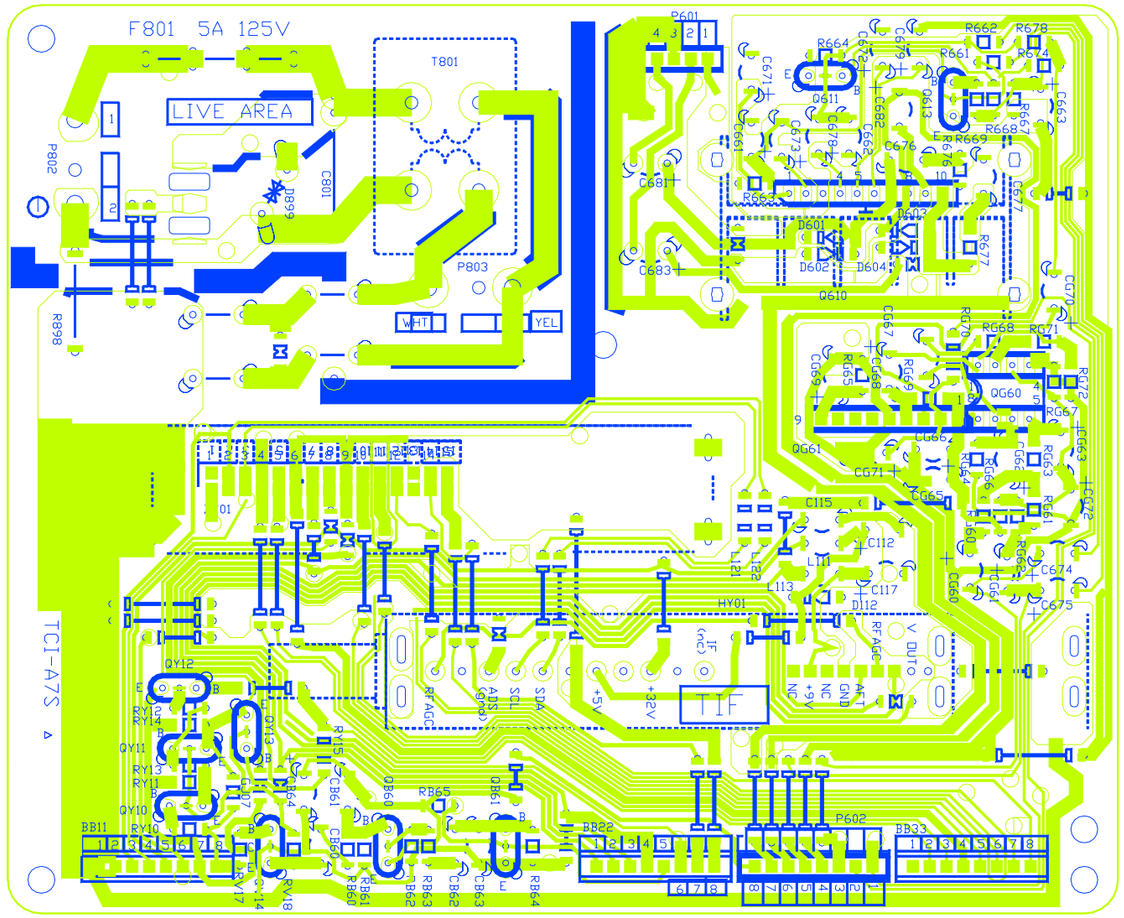
MAIN BOARD PB9361

BOTTOM (FOIL) SIDE



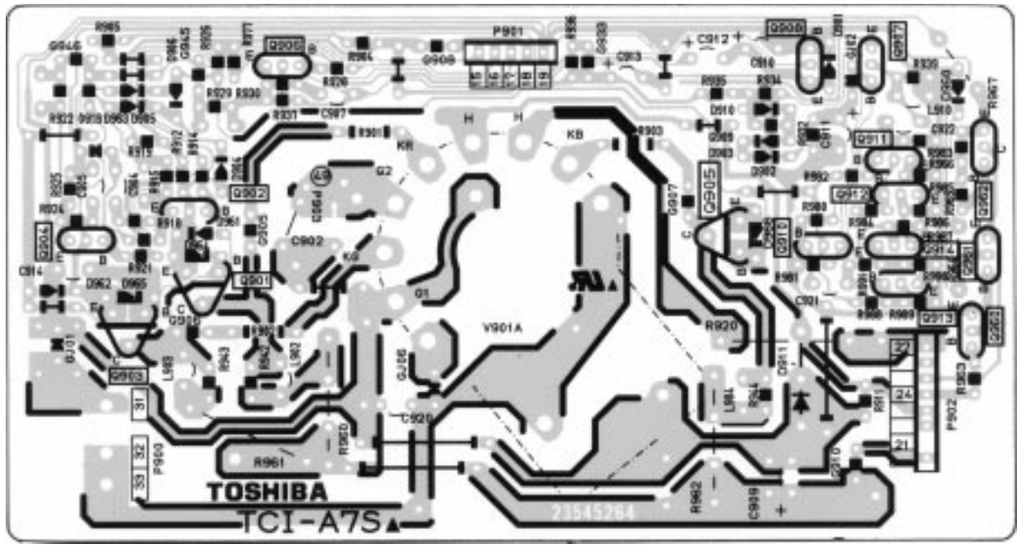
PIP/TIF DRIVE BOARD PB9362

BOTTOM (FOIL) SIDE



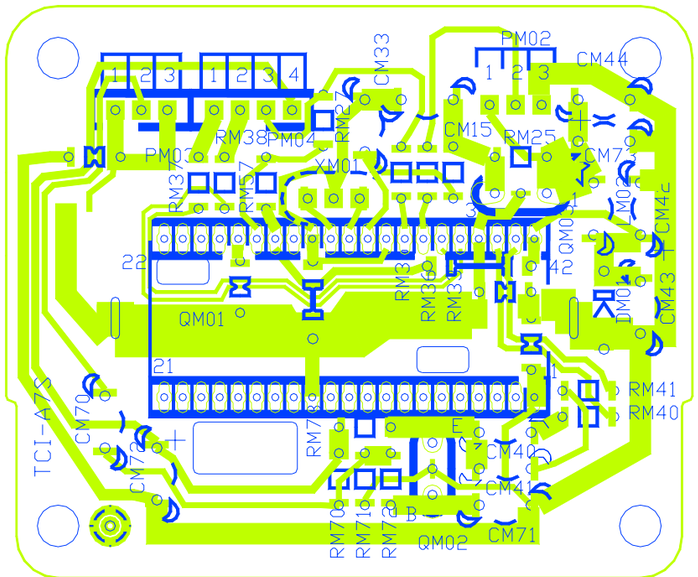
CRT DRIVE BOARD PB8642

BOTTOM (FOIL) SIDE



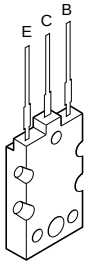
V-CHIP BOARD PB8688

BOTTOM (FOIL) SIDE

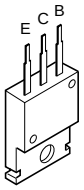


TERMINAL VIEW OF TRANSISTORS

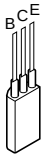
① 2SD2253
(old)
2SC5243



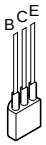
② 2SC3852
2SD1763A
2SC1569
2SC4544
2SA1788
2SA1306
2SA1186A



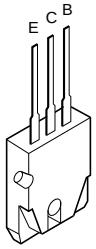
③ 2SC752GTM
2SC2482
2SC2655
2SC4721P



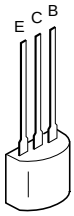
④ 2SC752
2SA562TM
2SA1015
2SC1815
2SC2878
2SC1740S
2SC2120
2SA9335



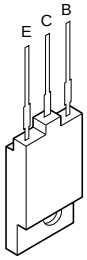
⑤ 2SA1788



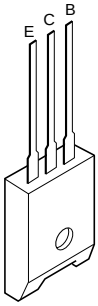
⑥ RN2203
RN2201
RN2004
RN1203
RN1204
RN2204
RN1205
RN1202
RN1201



⑦ 2SD1554
2SD2253
2SD1556
2SD2553
2SC5143



⑧ ON4409



MEMO

SPECIFICATIONS (Representative : 36A60)	
TELEVISION SYSTEM	NTSC standard
CHANNEL COVERAGE	VHF: 2 through 13 UHF: 14 through 69 Cable TV: mid band (A-8 through A-1, A through I) super band (J through W) hyper band (AA through ZZ, AAA, BBB) ultra band (65 through 94, 100 through 125)
POWER SOURCE	120V AC, 60Hz
AUDIO POWER	5W + 5W
SPEAKER TYPE	2-3/8 x 4-3/4 inches (60 x 120 mm)
VIDEO/AUDIO TERMINALS	S-VIDEO INPUT Y: 1V (p-p), 75 ohm, negative sync. C: 0.286V (p-p) (burst signal), 75 ohm VIDEO/AUDIO INPUT VIDEO: 1V(p-p), 75 ohm, negative sync. AUDIO: 150mV(rms) (30% modulation equivalent, 47k ohm) ColorStream™ (Color Difference) VIDEO/AUDIO INPUT Y: 1V (p-p), 75 ohm Cr: 0.7V (p-p), 75 ohm Cb: 0.7V (p-p), 75 ohm AUDIO: 2V (p-p), 1 kohm
DIMENSIONS	Width 878 mm Height 774 mm Depth 642 mm
MASS	73.0 kg

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN

SCHEMATIC DIAGRAM

MODEL : 27A60 **Chassis No. TAC0020**
32A60 **Chassis No. TAC0021**
36A60 **Chassis No. TAC0022**

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

NOTE:

1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsistion of 1/2 watt
   1RF = Fuse resistor of 1 watt 10W = Cement of 10 watt
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   Electolytic capacitor Mylar capacitor
3. The parts indicated with " ⚠ " have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage 120 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

SCHEMATIC DIAGRAM

MODEL : 27A60 Chassis No. TAC0020
32A60 Chassis No. TAC0021
36A60 Chassis No. TAC0022

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON THE MANUAL FOR THIS MODEL.

CAUTION: The international hazard symbols "⚠" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on the MANUAL for this model. Do not degrade the safety of the receiver through improper servicing.

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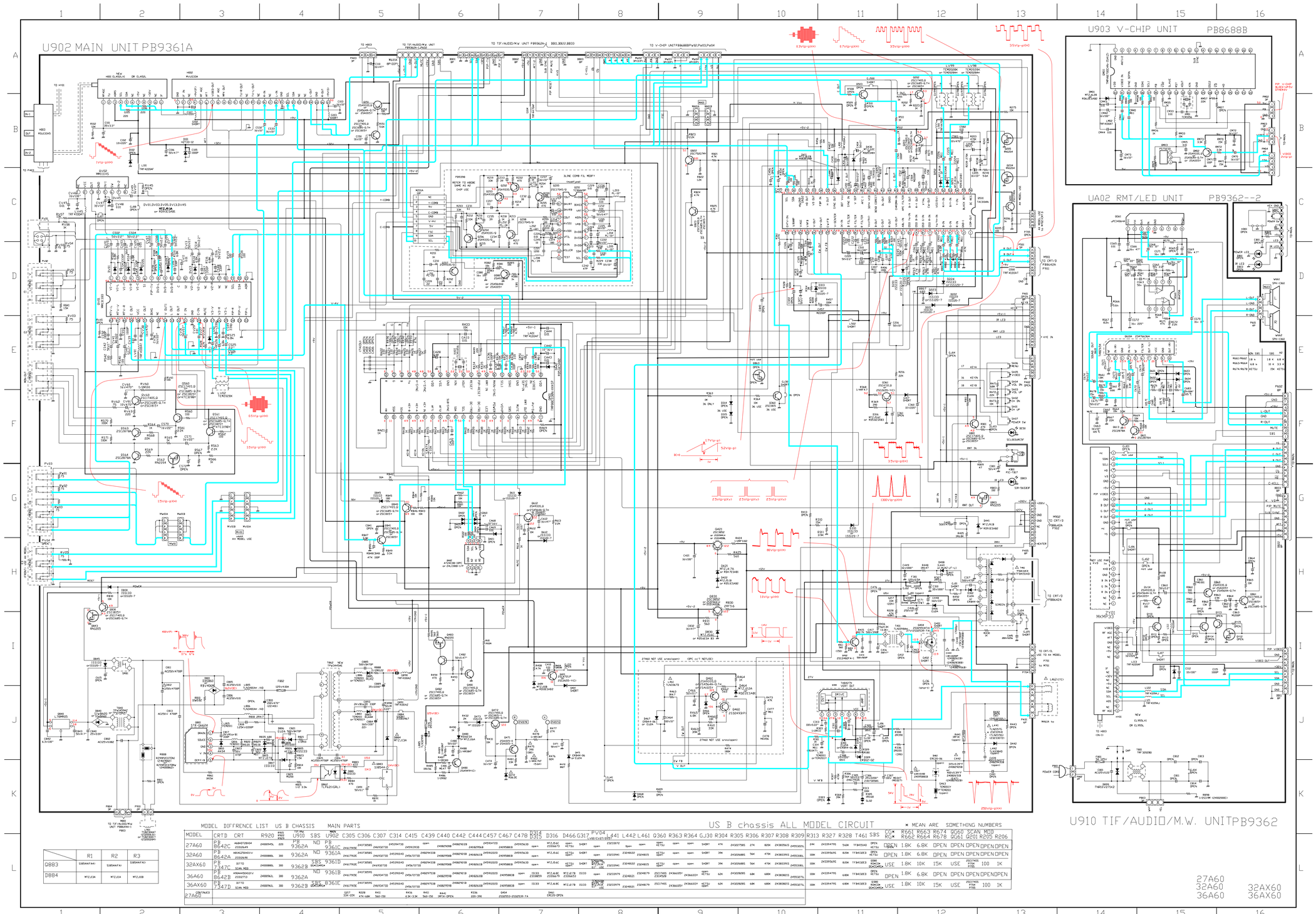
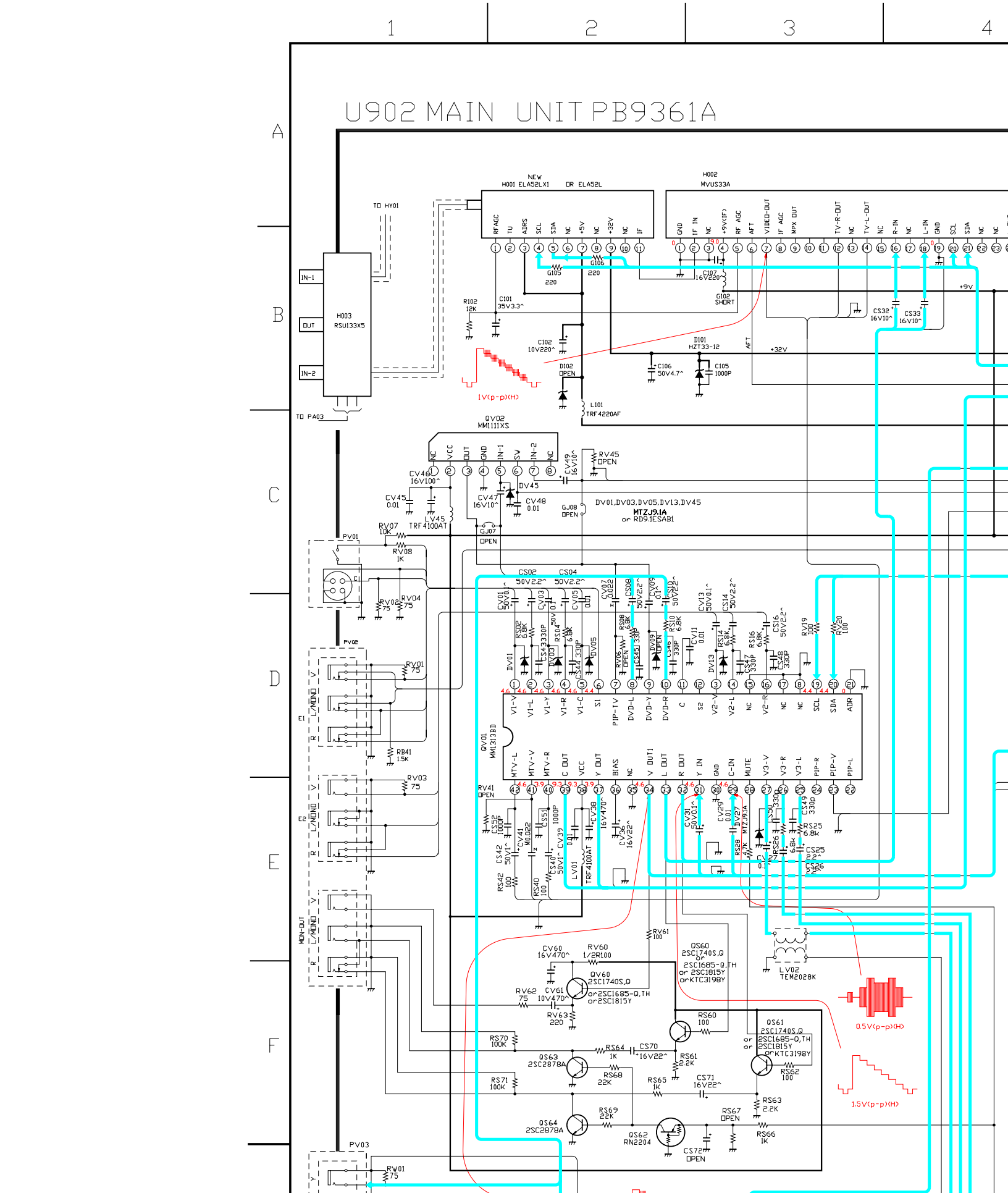
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are expressed in μF, and the values more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the following marks.
   Electolytic capacitor Mylar capacitor
3. The parts indicated with " ⚠ " have special characteristics, and should be replaced with identical parts only.
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassing ground, using a color bar signal with all controls at normal, line voltage 120 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.

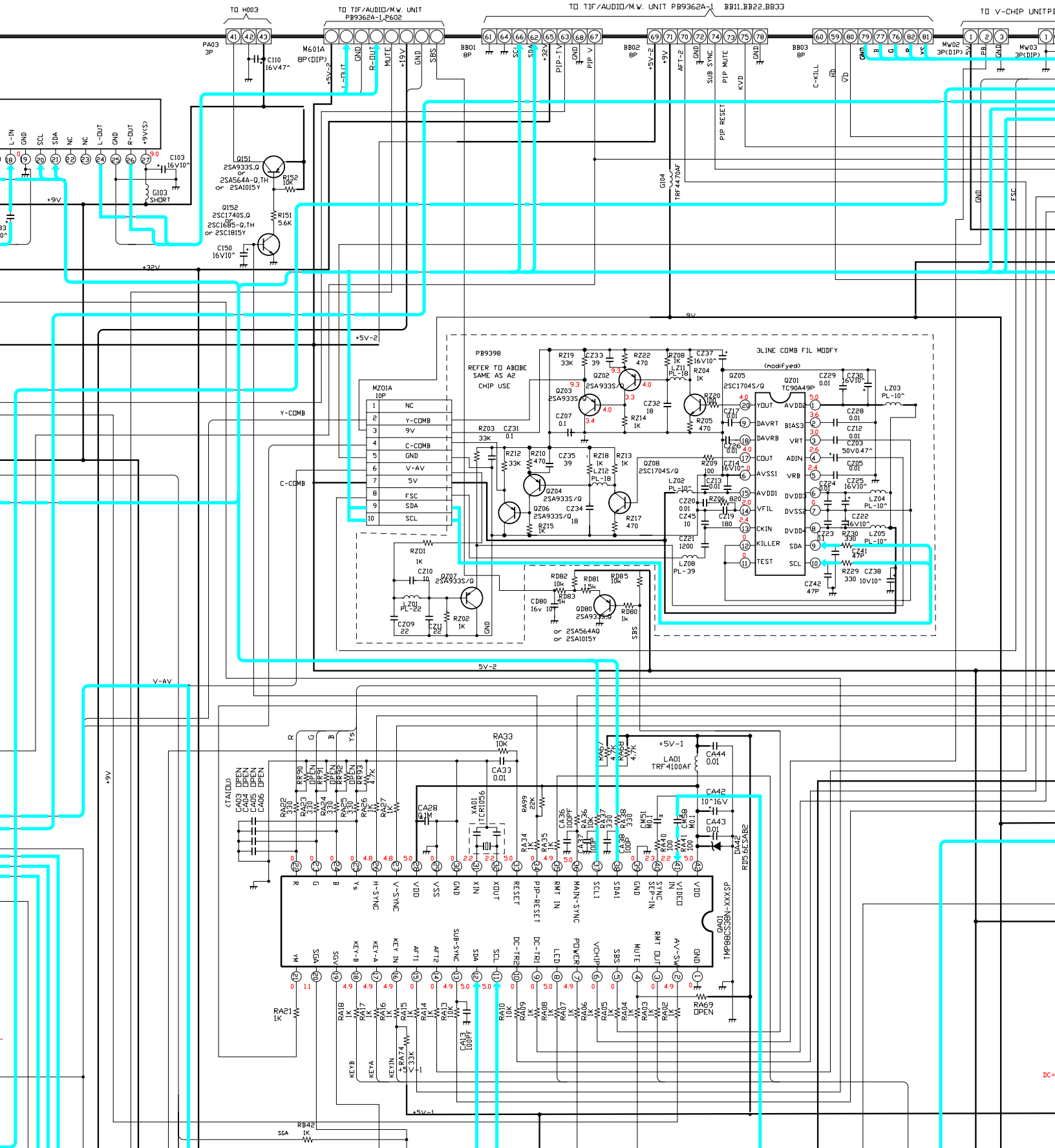

U902 MAIN UNIT PB9361A
U903 V-CHIP UNIT PB8688B
UA02 RMT/LED UNIT PB9362--2
U910 TIF/AUDIO/M.W. UNITPB9362
US B chassis ALL MODEL CIRCUIT

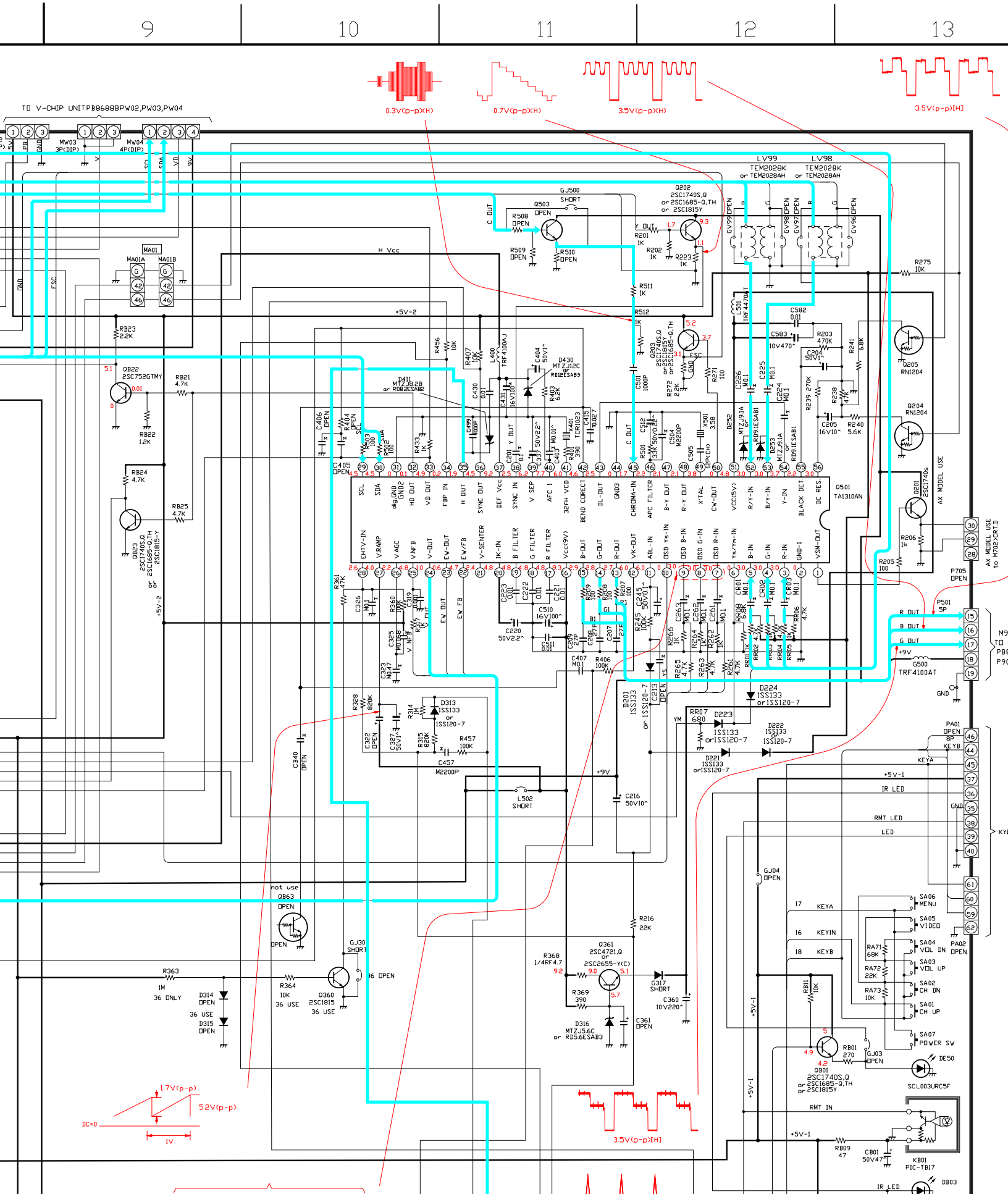
	R1	R2	R3
Q883	5185447AA1	5185447A2	5185447A2
D884	W1Z.0JA	W1Z.0JA	W1Z.0JB

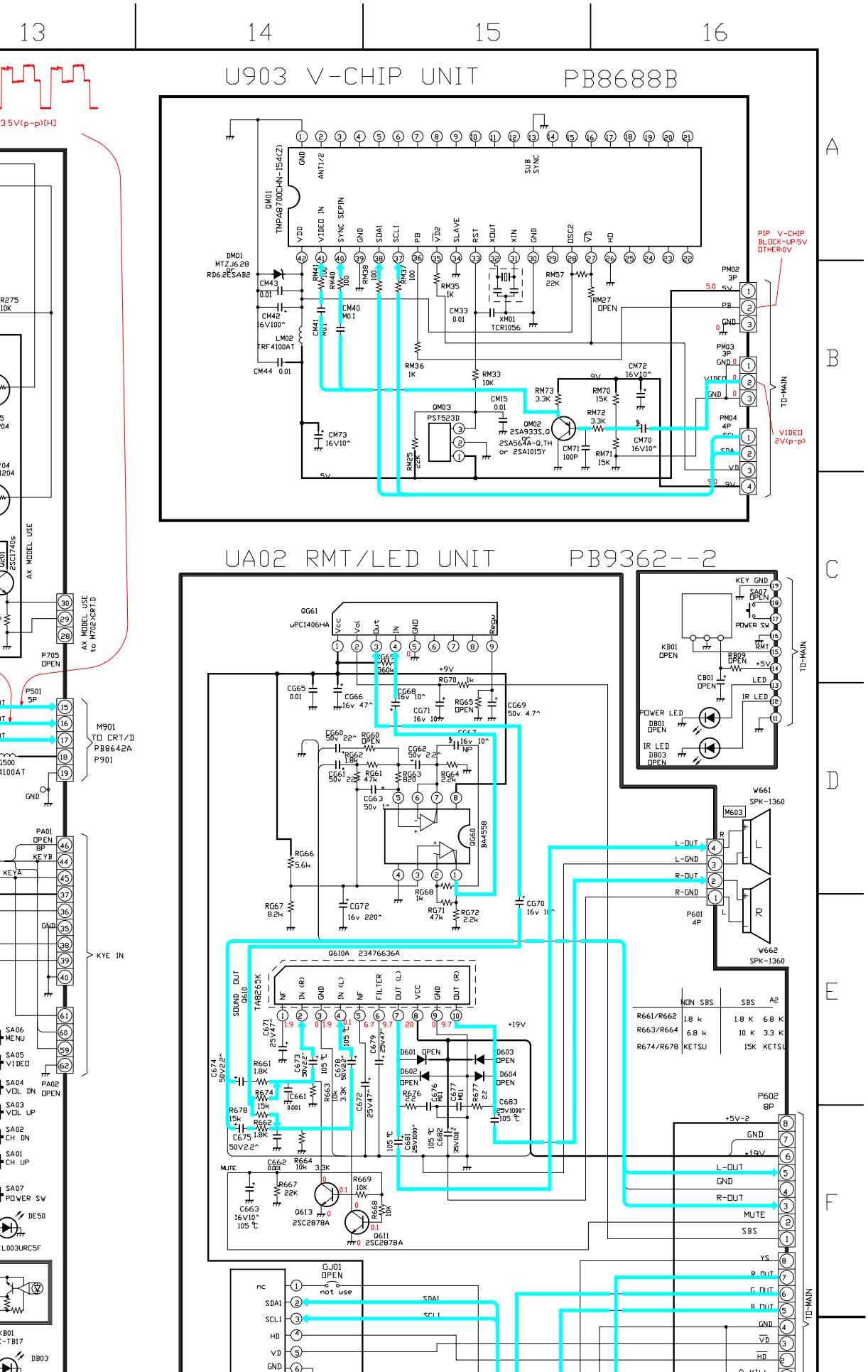
MODEL DIFFERENCE LIST US B CHASSIS MAIN PARTS

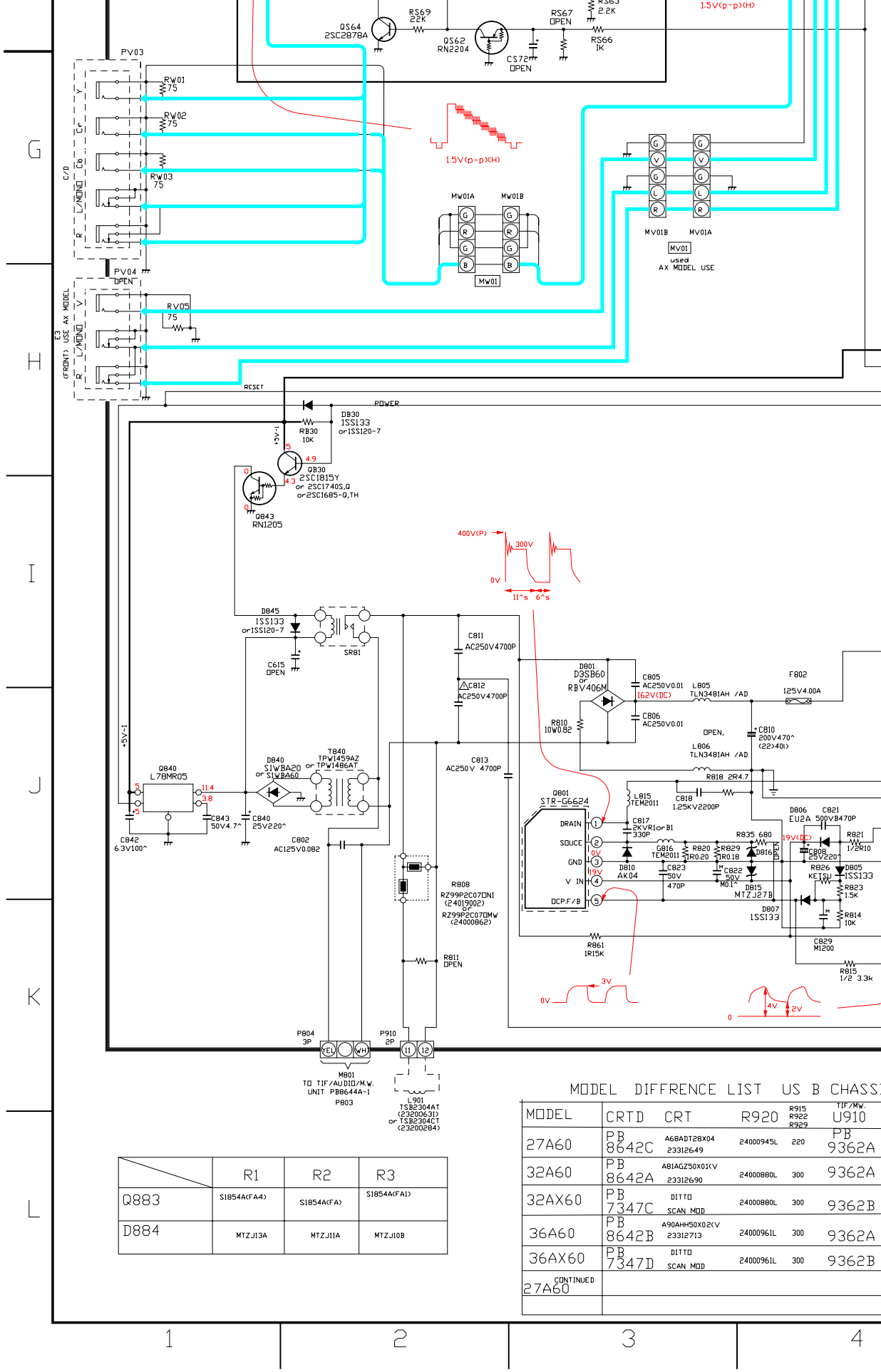
MODEL	CRT'D	CRT	R920	TIF/AUDIO/M.W. U910	SBS	MAIN U902	C305	C306	C307	C314	C415	C439	C440	C442	C444	C457	C467	C478	D314 D315	D316	D466	G311	PV04 V160	L441	L442	L461	Q360	R363	R364	GJ30	R304	R305	R306	R307	R308	R309	R313	R327	R328	T461	SBS	C61* R61*	R63 R64	R674 R678	QG60 QG61	SCAN NOTE QG201	R205	R206
27A60	PB 8642C	4684572B904	4900947JL	820	9362A	NO	PB 9361C	2413780E	2413780E	2493473D	2493473D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D	2493513D
32A60	PB 8642A	A684A2304SV	2333036D	300	9362A	NO	PB 9361A	2413780E	2413780E	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D
32AX60	PB 7347C	B1T1Q	2493088D, 300	9362B	SBS	9361D (SCAN)4684	2413780E	2413780E	2493473D	2493473D	2456727ZZ	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D
36A60	PB 8642B	A684A2304SV	2333071J	300	9362A	NO	PB 9361B	2413780E	2493473D	2493473D	2456727ZZ	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D
36AX60	PB 7347D	B1T1Q	2493088D, 300	9362B	SBS	9361E (SCAN)4684	2413780E	2493473D	2493473D	2456727ZZ	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D
CONTINUED 27A60							Q317 33K~62K	R208 47K~68K	R402 560~150	R416 4.3K~3.3K	R402 560~150	R441 560~150	0R5K~OPEN	2493473D 220~390	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D	2493473D


U902 MAIN UNIT PB9361A
1
2
3
4
A
B
C
D
E
F
NEW
H001 ELA52LX1 OR ELA52L
H002
MVUS33A
TO HY01
TO PA03
H003
RSU133X5
IN-1
OUT
IN-2
RFAGC
TU
ADRS
SCL
SDA
+5V
+32V
IF
GND
IF IN
+9V(IF)
RF AGC
AFT
VIDEO-OUT
IF AGC
MPX OUT
TV-R-OUT
TV-L-OUT
R-IN
L-IN
+9V
+32V
AFT
R102 12K
C101 35V3.3^
C102 10V220^
D101 HZT33-12
C106 50V4.7^
C105 1000P
D102 OPEN
L101 TRF4220AF
1V(p-p)(H)
QV02 MM1111XS
RV45 OPEN
CV46 16V100^
CV47 16V10^
CV48 0.01
CV45 0.01
LV45 TRF4100AT
DV45
GJ08 OPEN
DV01,DV03,DV05,DV13,DV45
MTZJ9.1A
or RD9.1ESAB1
RV07 10K
GJ07 OPEN
PV01
RV08 1K
RV02 75
RV04 75
PV02
RV01 75
RB41 1.5K
RV03 75
PV03
RW01 75
MON-OUT
QV01 MM1313BD
RV41 OPEN
LV01 TRF4100AT
QV60 2SC1740S,Q
or2SC1685-Q,TH
or2SC1815Y
QS60 2SC1740S,Q
or
2SC1685-Q,TH
or2SC1815Y
orKTC3198Y
QS61 2SC1740S,Q
or
2SC1685-Q,TH
2SC1815Y
orKTC3198Y
QS63 2SC2878A
QS64 2SC2878A
QS62 RN2204
LV02 TEM2028K
0.5V(p-p)(H)
1.5V(p-p)(H)


TO H003
TO TIF/AUDIO/M.W. UNIT PB9362A-1,P602
TO TIF/AUDIO/M.W. UNIT PB9362A-1 BB11,BB22,BB33
TO V-CHIP UNITPI
PA03 3P
M601A 8P(DIP)
BB01 8P
BB02 8P
BB03 8P
MW02 3P(DIP)
MW03 3P(DIP)
L-IN
GND
SCL
SDA
NC
NC
L-OUT
R-OUT
+9V(S)
C103 16V10^
G103 SHORT
Q151 2SA933S,Q or 2SA564A-Q,TH or 2SA1015Y
R152 10K
Q152 2SC1740S,Q or 2SC1685-Q,TH or 2SC1815Y
R151 5.6K
C150 16V10^
+32V
+9V
+5V-2
+5V-1
5V-2
V-AV
PB9398
REFER TO ABOBE SAME AS A2 CHIP USE
3LINE COMB FIL MODFY
(modified)
MZ01A 10P
Y-COMB
C-COMB
9V
FSC
SDA
SCL
5V
GND
QZ01 TC90A49P
QZ02 2SA933S/Q
QZ03 2SA933S/Q
QZ04 2SA933S/Q
QZ05 2SC1704S/Q
QZ06 2SA933S/Q
QZ07 2SA933S/Q
QZ08 2SC1704S/Q
QDB0 2SA933S/Q
or 2SA564A0
or 2SA1015Y
LZ01 PL-22
LZ02 PL-10
LZ03 PL-10^
LZ04 PL-10^
LZ05 PL-10^
LZ08 PL-39
LZ11 PL-18
LZ12 PL-18
YOUT
AVDD2
DAVRT
BIAS3
DAVRB
VRT
COUT
ADIN
AVSS1
VRB
AVDD1
DVDD1
VFIL
DVSS2
CKIN
DVDD2
KILLER
SDA
TEST
SCL
LA01 TRF4100AF
QA01 1MP88CS98N-XXXSP
RA69 OPEN
RB42 1K
RA21 1K
KEYB
KEYA
KEYIN
V-I
R
G
B
YS
HSYNC-S
VSYNC-S
VDD
VSS
GND
XIN
XOUT
RESET
PIP-RESET
RMT IN
MAIN-SYNC
SCL1
SDA1
GND
SYNC-IN
VDEC IN
VDD
YM
SDA
VSYS
KEY-B
KEY-A
KEY IN
AFT1
AFT2
SUB-SYNC
SDA
SCL
DC-TR2
DC-TR1
LED
PDWER
VCHIP
SBS
MUTE
RMT OUT
AV-SW
GND


9
10
11
12
13
TO V-CHIP UNIT PB868BPW02,PW03,PW04
0.3V(p-p)(H)
0.7V(p-p)(H)
3.5V(p-p)(H)
3.5V(p-p)[H]
MW03 3P(DIP)
MW04 4P(DIP)
MA01
MA01A
MA01B
H Vcc
+5V-2
+9V
+5V-1
LV99 TEM2028K or TEM2028AH
LV98 TEM2028K or TEM2028AH
GJ500 SHORT
Q503 OPEN
R508 OPEN
R509 OPEN
R510 OPEN
Q202 2SC1740S,Q or 2SC1685-Q,TH or 2SC1815Y
R201 1K
R202 1K
R223 1K
R511 1K
R512 1K
Q203 2SC1740S,Q or 2SC1685-Q,TH or 2SC1815Y
R275 10K
L501 TRF4470AT
C582 0.01
C583 10V470^
R203 470K
C204 50V1^
R241 6.8K
Q205 RN1204
Q204 RN1204
R239 270K
R238 4.7K
C205 16V10^
R240 5.6K
C226 M01
C225 M01
C224 M01
D252 MTZJ9.1A or RD9.1ESAB1
D253 MTZJ9.1A or RD9.1ESAB1
RB23 2.2K
Q822 2SC752GTMY
RB21 4.7K
RB22 1.2K
RB24 4.7K
RB25 4.7K
Q823 2SC1740S,Q or 2SC1685-Q,TH or 2SC1815-Y
R456 10K
R407 100
L400 TRF4100AJ
C404 50V1^
D430 MTZJ12C or RD12ESAB3
D411 MTZJ8.2B or RD8.2CAB2
C430 0.01
C431 16V100^
R403 6.2K
C406 OPEN
R404 OPEN
R405 100
R503 100
R502 100
R433 3.3K
C499 1000P
C401 TCR1023
C415 0.027
C403 M0.01
C405 OPEN
C337 50V2.2^
C201 Y OUT 0.1
C512 50V0.22
C501 1000P
C504 M2200P
C505 25V10
R501 3.3K
C503 3.3K
C C OUT
Y Y OUT
C OUT
Q501 TA1310AN
SCL SDA dig.GND GND2 HD OUT VD OUT FBP IN H OUT SYNC OUT DEF Vcc SYNC IN V SEP AFC 1 32FH VCO BEND CORRECT DL-OUT GND3 CHROMA-IN APC FILTER B-Y OUT R-Y OUT XTAL CW-OUT VCC(5V) R/Y-IN B/Y-IN Y-IN BLACK DET. DC RES
EHTV-IN VRAMP V-AGC V-NFB V-OUT EW-OUT E/W-FB V-SENTER IK-IN B FILTER G FILTER R FILTER Vcc(9V) B-OUT G-OUT R-OUT VK-OUT ABL-IN DSD Ys-IN DSD B-IN DSD G-IN DSD R-IN Ys/Y-IN B-IN G-IN R-IN GND-I VSM-OUT
AX MODEL USE
AX MODEL USE to M702CRTD
P705 OPEN
P501 5P
R205 100
R206 1K
R361 47K
C326 M01
R360 100K
C319 0.1
C325 M01
R317 3.3K
C323 M01
C223 M01
C222 M01
C221 0.01
C510 16V100^
C220 50V2.2^
C501 0.01
C209 27P
C208 27P
C207 27P
R99 100
R98 100
R97 100
R96 100
R95 100
R94 100
R93 100
R92 100
R91 100
C245 50V0.1^
R245 100K
R266 1K
R265 4.7K
R264 4.7K
R263 4.7K
R262 4.7K
R261 4.7K
C263 M01
C262 M01
C261 M01
CR01 M01
CR02 M01
CR03 M01
RR00 680
RR01 1K
RR02 4.7K
RR03 4.7K
RR04 4.7K
RR05 1K
RR06 4.7K
R_OUT
B_OUT
G_OUT
+9V
G500 TRF4100AT
GND
C407 M01
R406 100K
D224 1SS133 or 1SS120-7
D223 1SS133 or 1SS120-7
D222 1SS133 or 1SS120-7
D221 1SS133 or 1SS120-7
D201 1SS133 or 1SS120-7
C213 OPEN
YM
YS
R328 820K
R314 1M
D313 1SS133 or 1SS120-7
C322 OPEN
C327 50V1^
R315 820K
R457 100K
C457 M2200P
C840 OPEN
L502 SHORT
C216 50V10^
not use
QB63 OPEN
GJ30 SHORT
R363 1M 36 ONLY
R364 10K 36 USE
Q360 2SC1815 36 USE
D314 OPEN 36 USE
D315 OPEN
R368 1/4RF4.7
Q361 2SC4721,Q or 2SC2655-Y(C)
R369 390
D316 MTZJ5.6C or RD5.6ESAB3
R216 22K
G317 SHORT
C360 10V220^
C361 OPEN
PA01 OPEN 8P
KEYA
KEYB
KEYIN
IR LED
LED
RMT LED
GND
GJ04 OPEN
SA06 MENU
SA05 VIDEO
SA04 VOL DN
SA03 VOL UP
SA02 CH DN
SA01 CH UP
SA07 POWER SW
PA02 OPEN
RA71 68K
RA72 22K
RA73 10K
R811 10K
RB01 270
GJ03 OPEN
DE50 SCL003URC5F
QB01 2SC1740S,Q or 2SC1685-Q,TH or 2SC1815Y
RMT IN
RB09 47
CB01 50V47
KB01 PIC-TBI7
DB03
IR LED
1.7V(p-p)
5.2V(p-p)
DC=0
1V

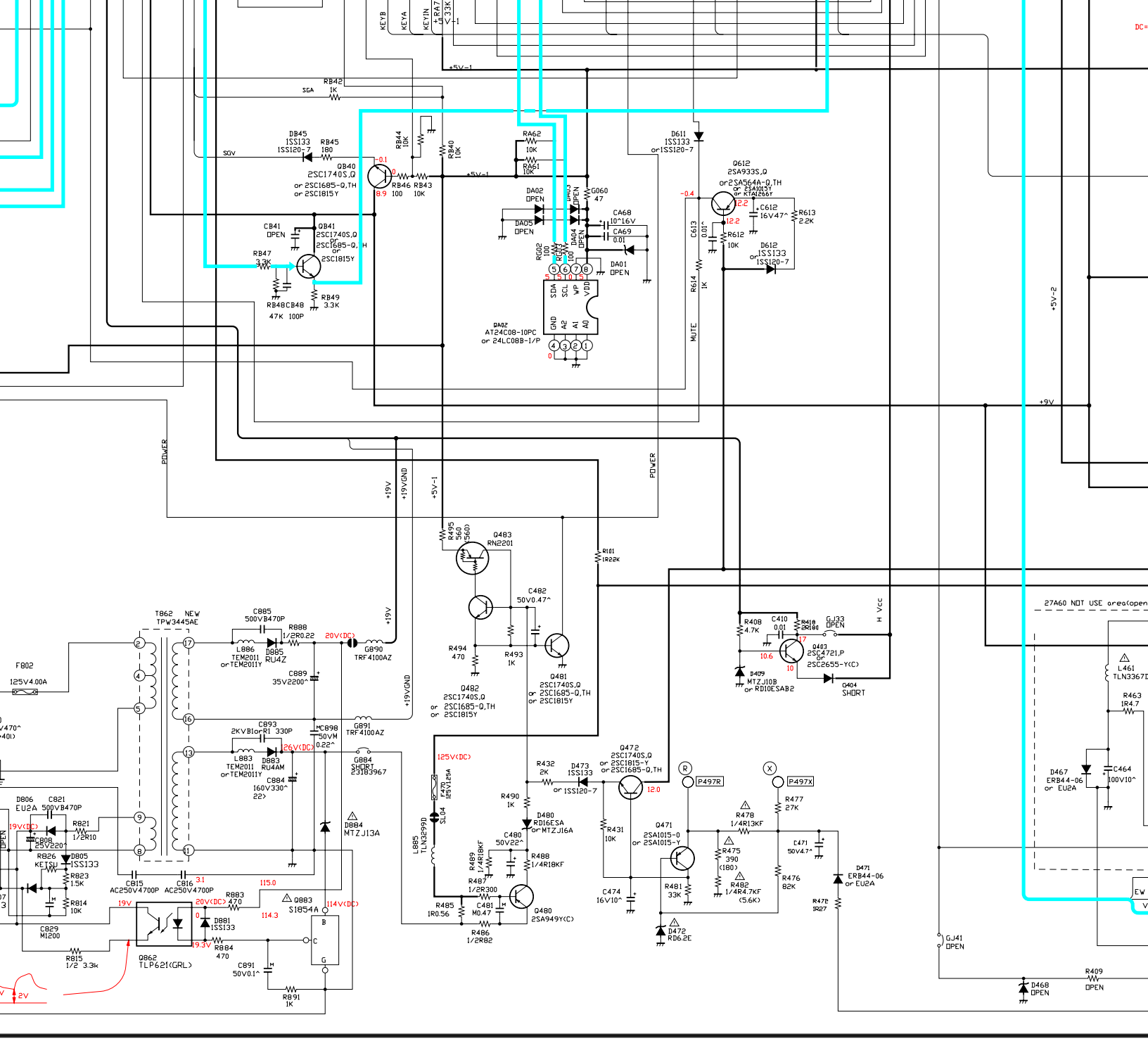

13
14
15
16
U903 V-CHIP UNIT PB8688B
UA02 RMT/LED UNIT PB9362--2
A
B
C
D
E
F
TO-MAIN
PIP V-CHIP BLOCK-UP:5V OTHER:0V
VIDEO 2V(p-p)
AX MODEL USE
to M702 CRT D
M901 TO CRT/D PB8642A P901
KEY IN
SPK-1360
SPK-1360
NON SBS
SBS
A2
R661/R662 1.8 k
1.8 K 6.8 K
R663/R664 6.8 k
10 K 3.3 K
R674/R678 KETSU
15K KETSU



	R1	R2	R3
Q883	S1854A(FA4)	S1854A(FA)	S1854A(FA1)
D884	MTZJ13A	MTZJ11A	MTZJ10B

MODEL DIFFRENCE LIST US B CHASSI

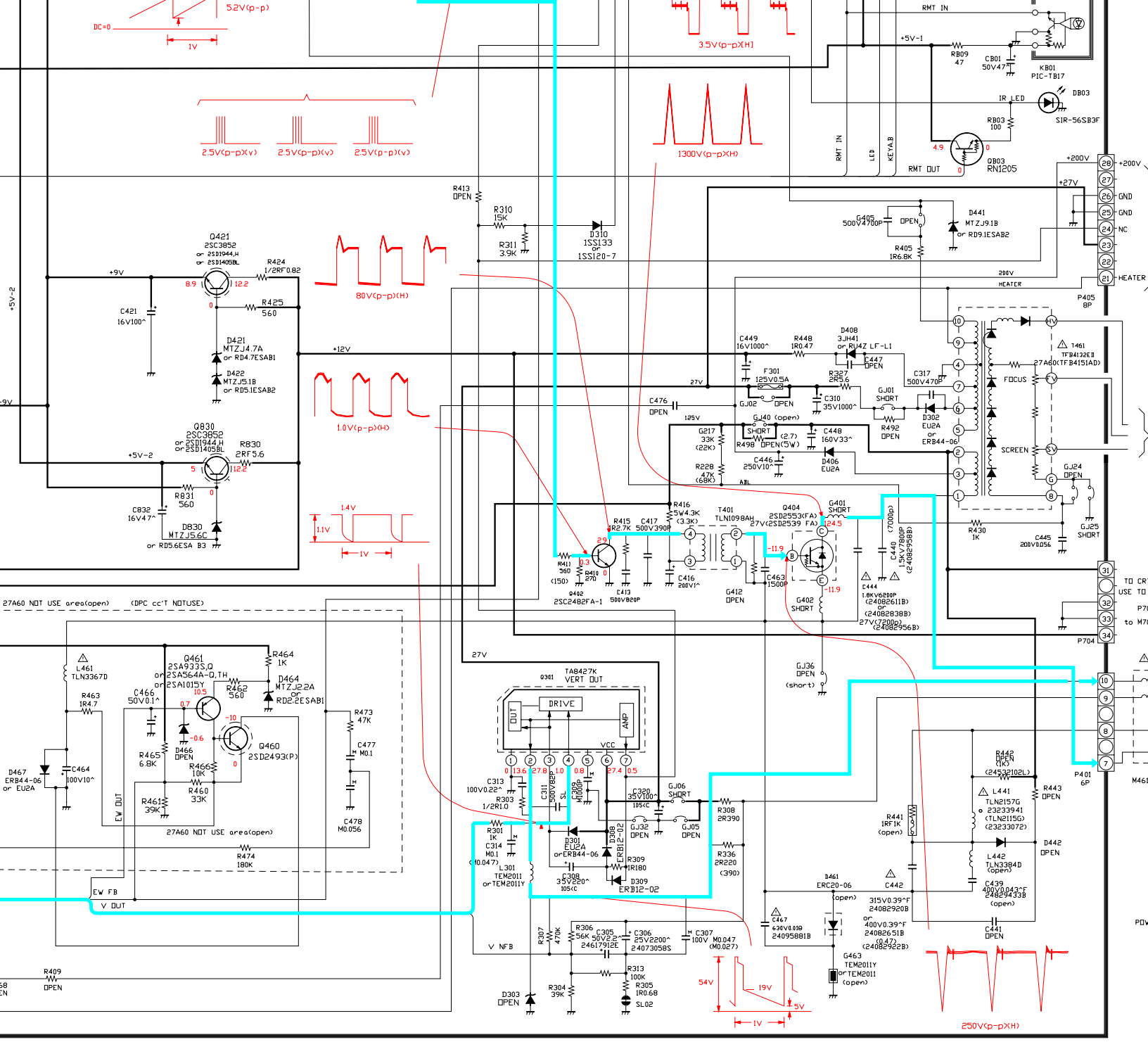
MODEL	CRTD	CRT	R920	R915 R922 R929	TIF/MW. U910
27A60	PB 8642C	A68ADT28X04 23312649	24000945L	220	PB 9362A
32A60	PB 8642A	A81AGZ50X01CV 23312690	24000880L	300	9362A
32AX60	PB 7347C	DITTO SCAN MOD	24000880L	300	9362B
36A60	PB 8642B	A90AHH50X02CV 23312713	24000961L	300	9362A
36AX60	PB 7347D	DITTO SCAN MOD	24000961L	300	9362B
27A60 CONTINUED					



US B CHASSIS MAIN PARTS

D	R915 R922 R929	TIF/MW. U910	SBS	MAIN U902	C305	C306	C307	C314	C415	C439	C440	C442	C444	C457	C467	C478	D314 D315	D316	D466	G317 PV04 LV02/CV27/DV27	L441	L442	L461	Q360	R36
L	220	PB 9362A	NO	PB 9361C	24617915E	24073058S	24693273D	24539473D	24591393D	open	24082928B	24082922B	24082956B	24591472D	24095881B	24591563D	open	MTZJ5.6C 23316673	open KETSU	SHORT	open	23233072	0pen	open	open KETSU	oper
L	300	9362A	NO	9361A	24617912E	24073058S	24693273D	24539104D	24567273D	24829433B	24082958B	24082920B	24082611B	24591222D	24095881B	24591563D	open	MTZJ5.6C	KETSU open	SHORT	open	23233941	23248122	23248115	KETSU open	oper
L	300	9362B	SBS	9361D	24617912E	24073058S	24693273D	24539104D	24567273D	24829433B	24082958B	24082920B	24082611B	24591222D	24095881B	24591563D	open	MTZJ5.6C	KETSU open	SHORT	TEM2028K RV39-75 MTZJ9.1A 0.1^ USE	23233941	23248122	23248115	KETSU open	oper
L	300	9362A	NO	9361B	24617915E	24073059S	24693473D	24539104D	24567273D	24829753B	24082959B	24082921B	24082610B	24591222D	24095883B	open	1S133 23118859	MTZJ6.8C 23316679	MTZJ2.7B 23316653	1S133	open	23233979	23248121	23248179	2SC1740S 23114528	24366
L	300	9362B	SBS	8361E	24617915E	24073059S	24693473D	24539104D	24567273D	24829753B	24082959B	24082921B	24082610B	24591222D	24095883B	open	1S133	MTZJ6.8C	MTZJ2.7B	1S133	TEM2028K RV39-75 MTZJ9.1A 0.1^ USE	23233979	23248121	23248179	2SC1740S	24366

					G217 33K-22K	R228 47K-68K	R411 560-150		R416 4.3K-3.3K	R411 560-150	R441 1RF1K-OPEN		R336 220-390	Q404 2SD2553-2SD2539 FA			D461 ERC20-OPEN								

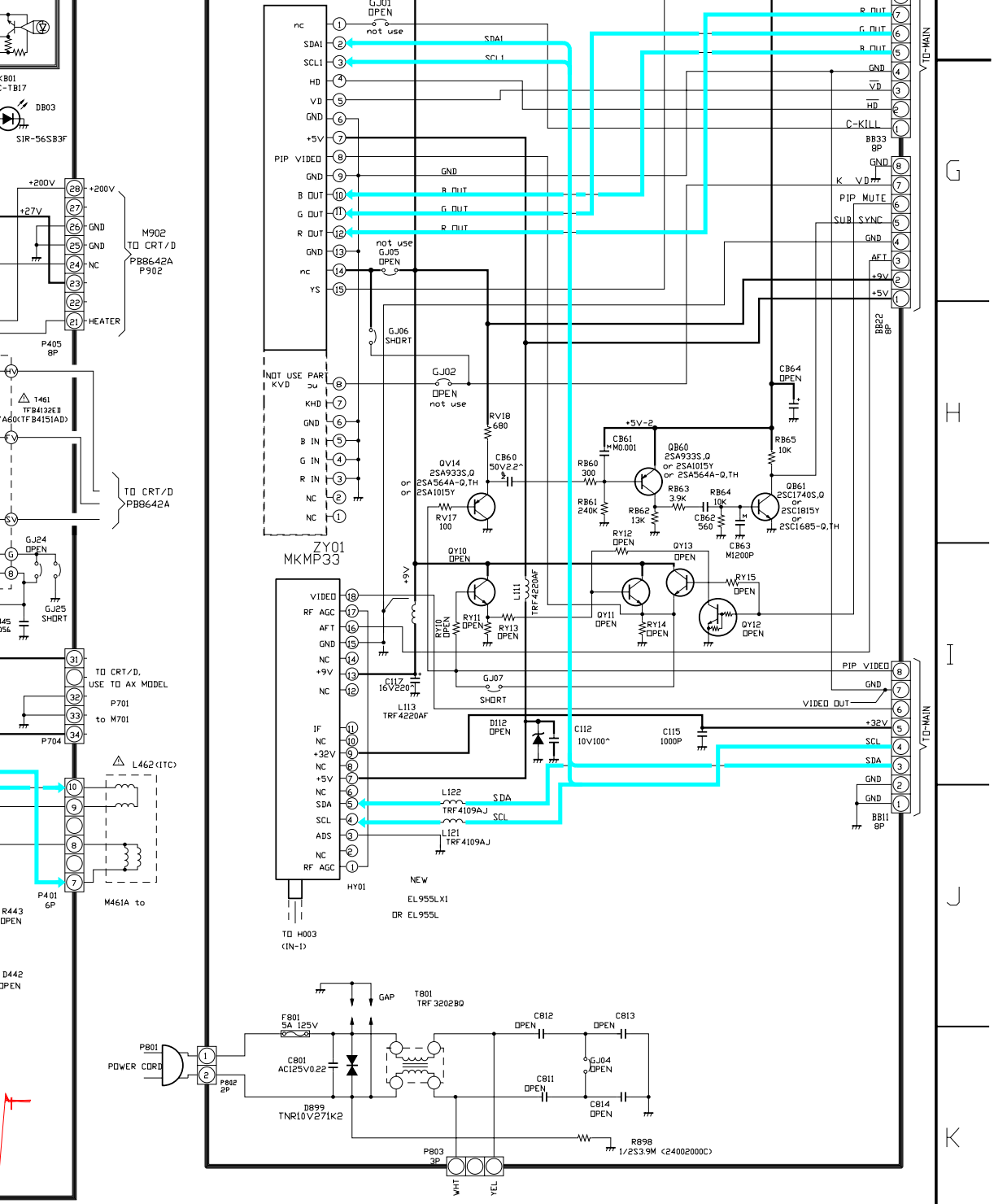


US B chassis ALL MODEL CIRCUIT

* MEAN ARE SOMETHING NUMBERS

461	Q360	R363	R364	GJ30	R304	R305	R306	R307	R308	R309
pen	open KETSU	open	open	SHORT	47K	24322758S	27K	820K	24383561S	24553221L
248115	KETSU open	open	open	SHORT	39K	24322688S	56K	470K	24383391S	24553181L
248115	KETSU open	open	open	SHORT	39K	24322688S	56K	470K	24383391S	24553181L
248179	2SC1740S 23114528	24366105Y	24366103Y	open KETSU	62K	24322828S	68K	680K	24383821S	24553271L
248179	2SC1740S	24366105Y	24366103Y	KETSU open	62K	24322828S	68K	680K	24383821S	24553271L

R313	R327	R328	T461	SBS	CG* RG*	R661 R662	R663 R664	R674 R678	QG60 QG61	SCAN MOD Q201 R205 R206
24K	24339479S	560K	TFB4151AD	OPEN KETSU	OPEN OPEN	1.8K	6.8K	OPEN	OPEN	OPEN OPEN OPEN
100K	24339569S	820K	TFB4132ED	OPEN KETSU	OPEN	1.8K	6.8K	OPEN	OPEN	OPEN OPEN OPEN
100K	24339569S	820K	TFB4132ED	QD80 RD*CD* QG*CG*RG*	USE	1.8K	10K	15K	USE	2SC1740S P704 P705 100 1K
100K	24339479S	680K	TFB4132ED	OPEN KETSU	OPEN	1.8K	6.8K	OPEN	OPEN	OPEN OPEN OPEN
100K	24339479S	680K	TFB4132ED	QD80 RD*CD* QG*CG*RG*	USE	1.8K	10K	15K	USE	2SC1740S P704 P705 100 1K



U910 TIF/AUDIO/M.W. UNITPB9362

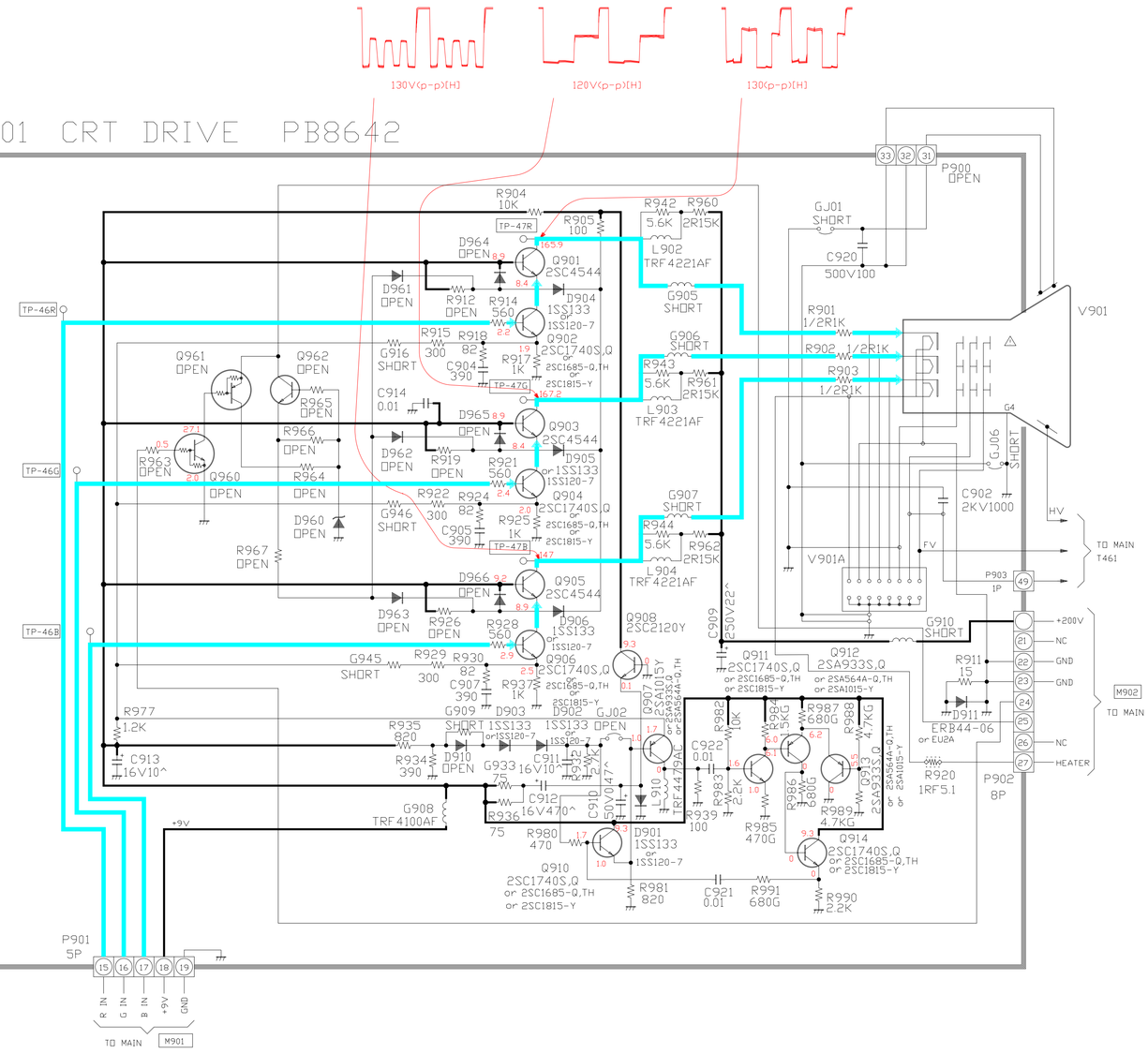
27A60
32A60
36A60

32AX60
36AX60

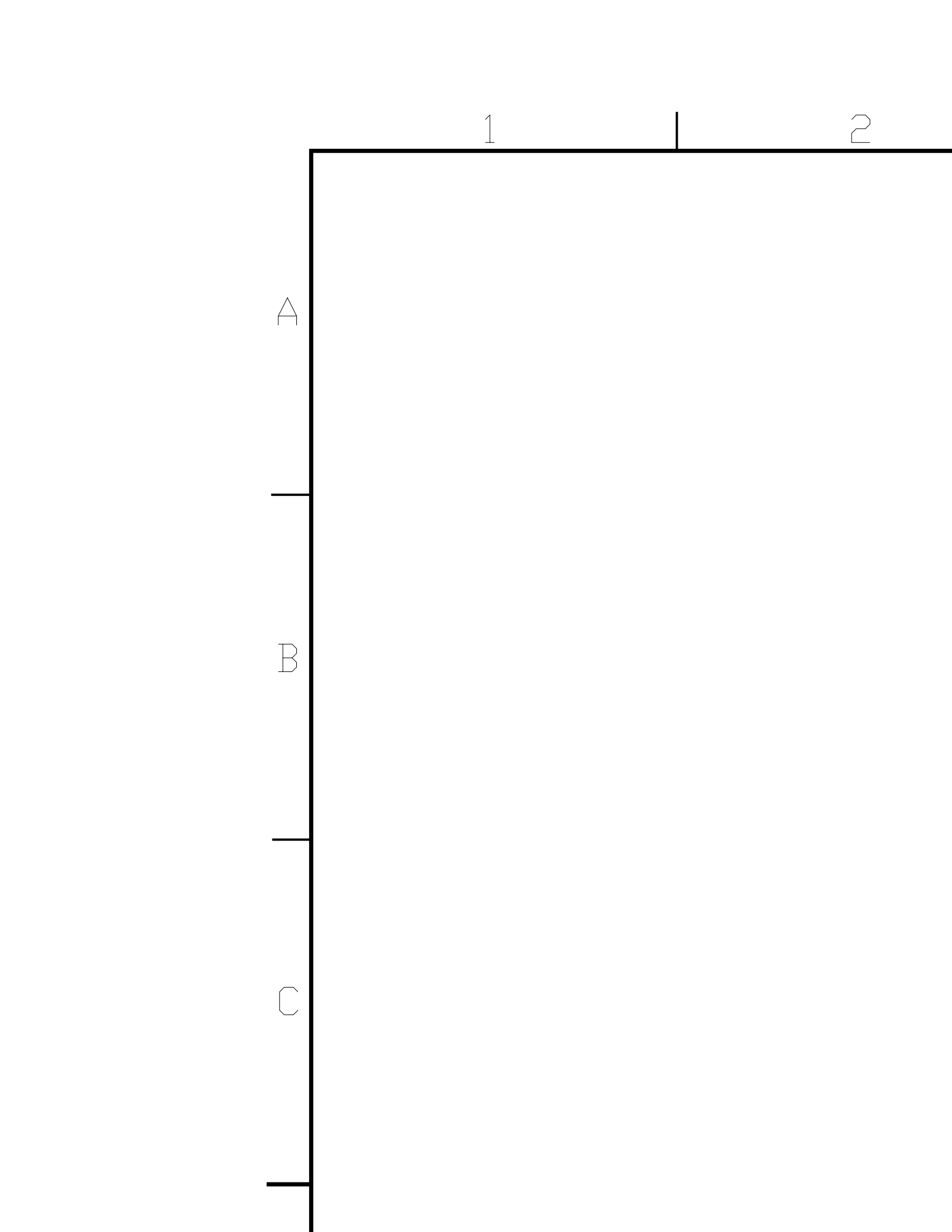
13 14 15 16

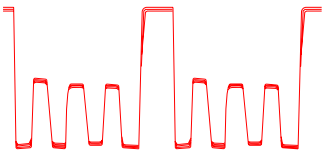
G H I J K L

U901 CRT DRIVE PB8642



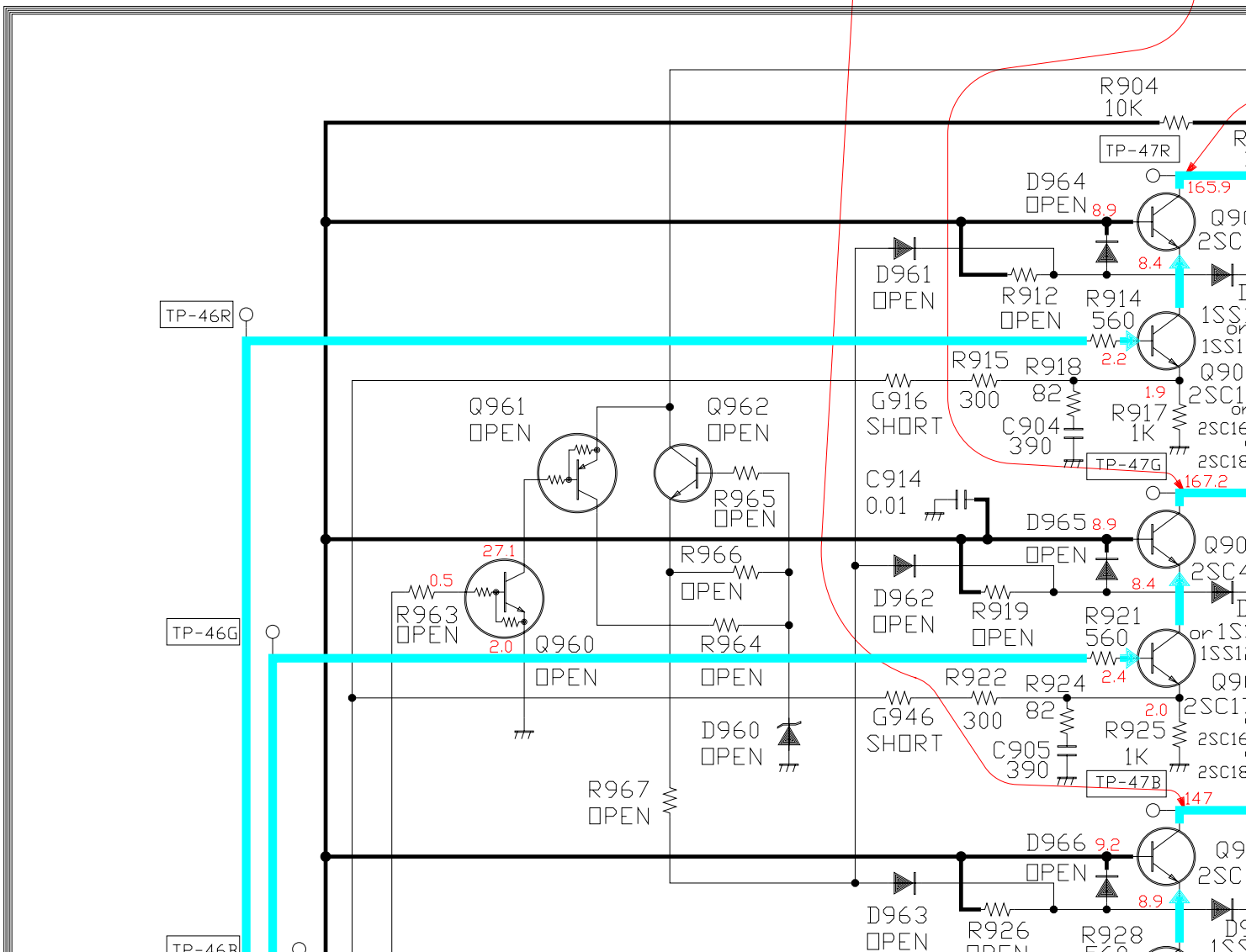
CRT-DRIVE
27A60
32A60
36A60

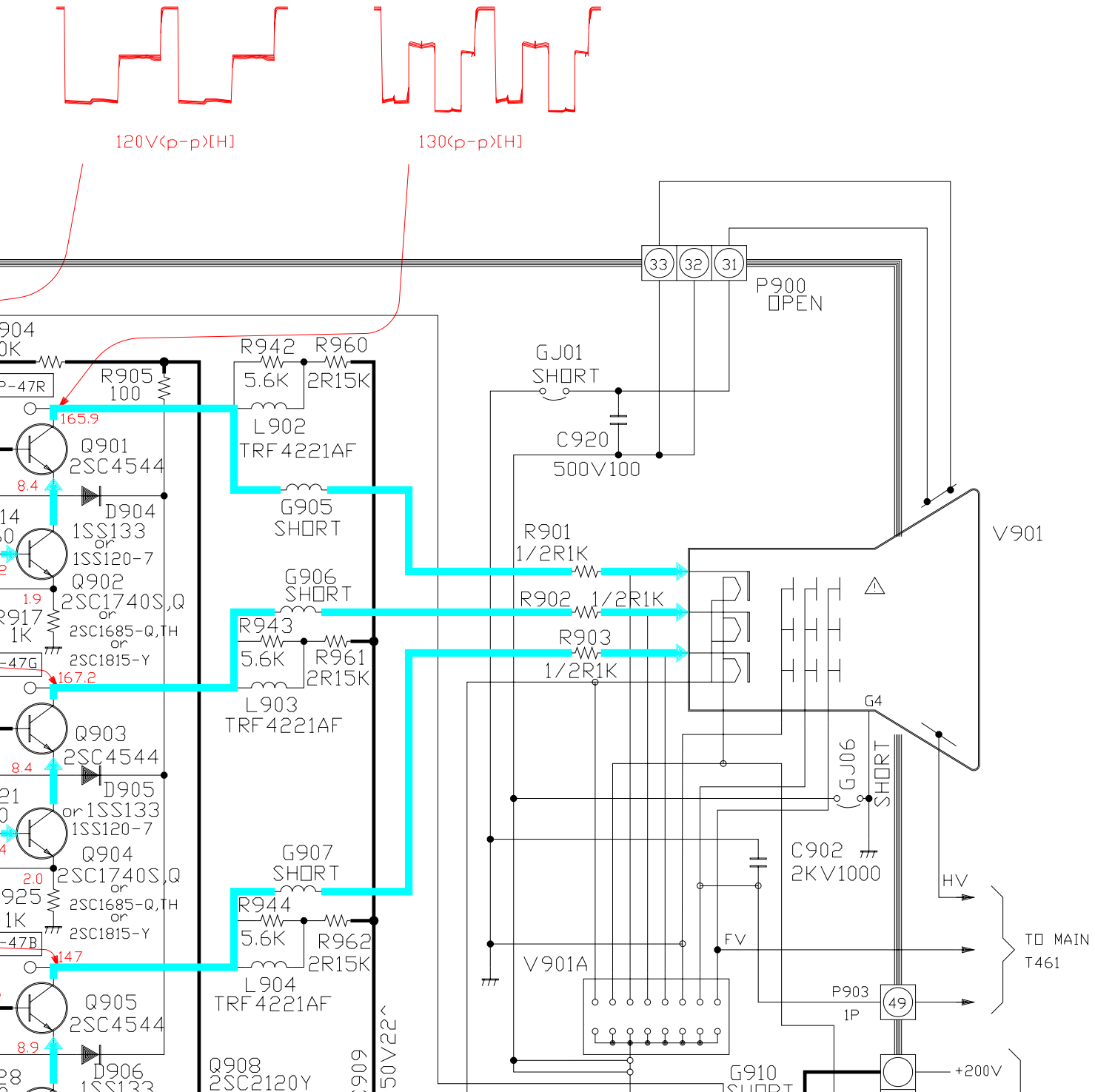

1
2
A
B
C

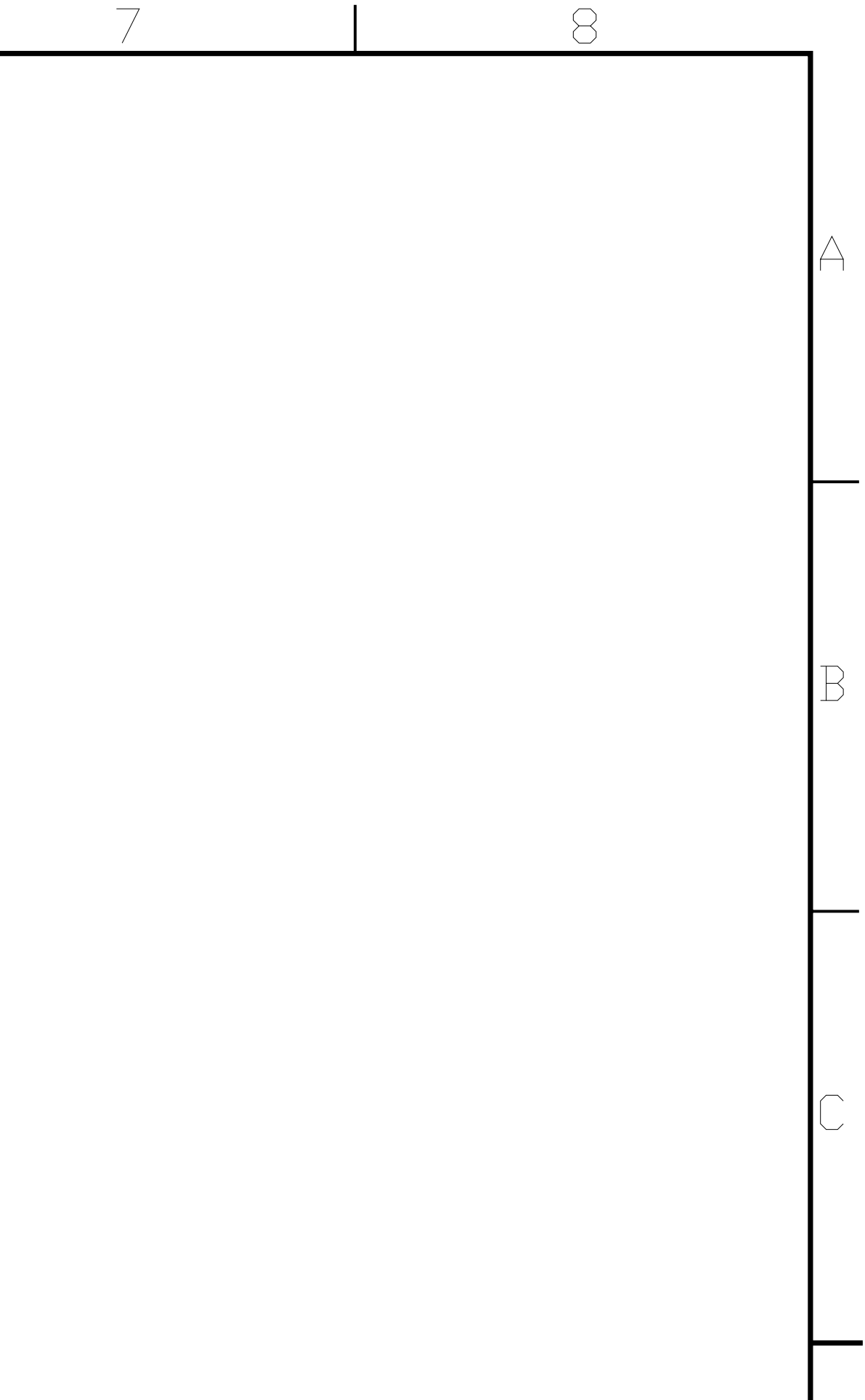


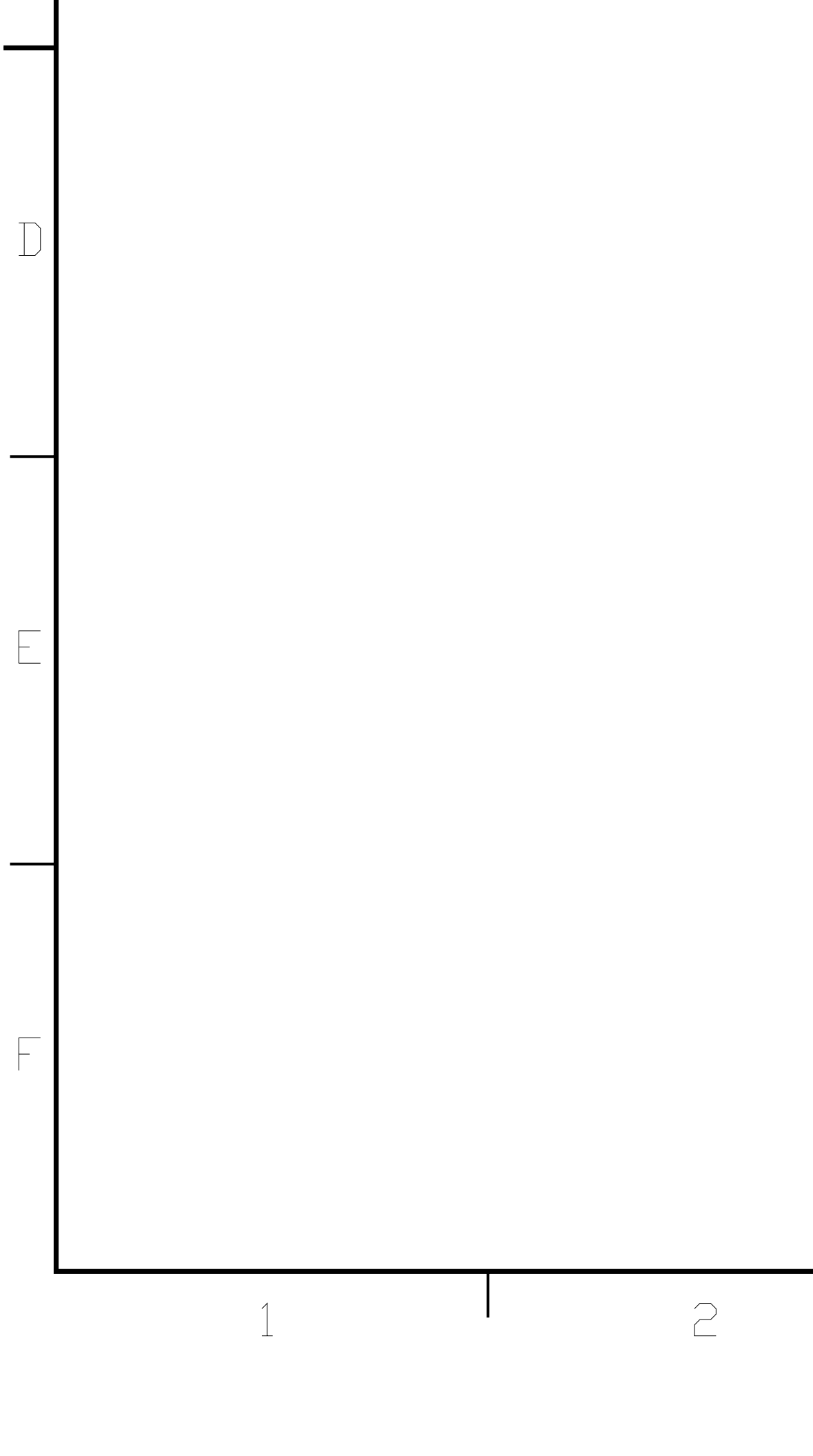
130V(p-p)[H]

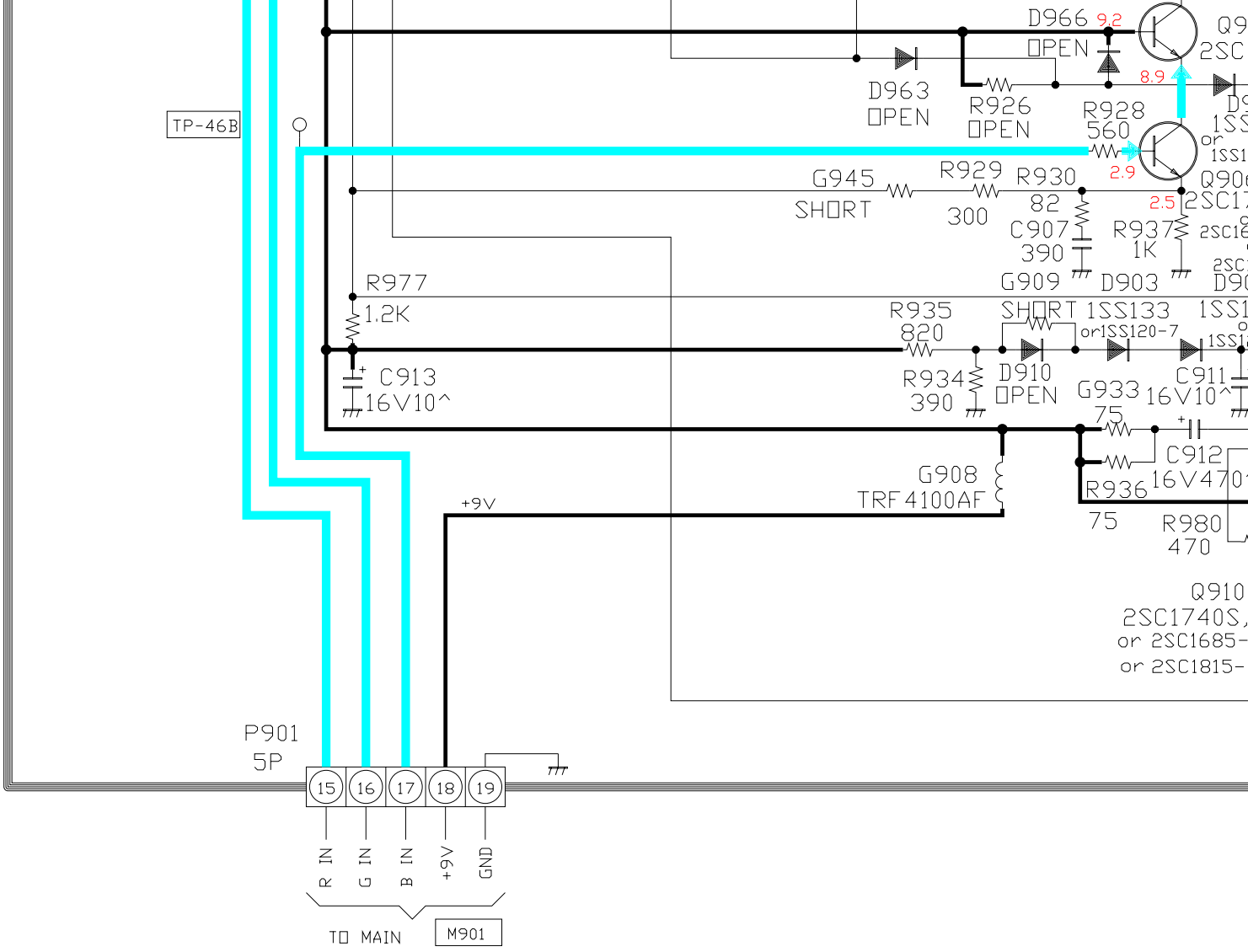
U901 CRT DRIVE PB8642

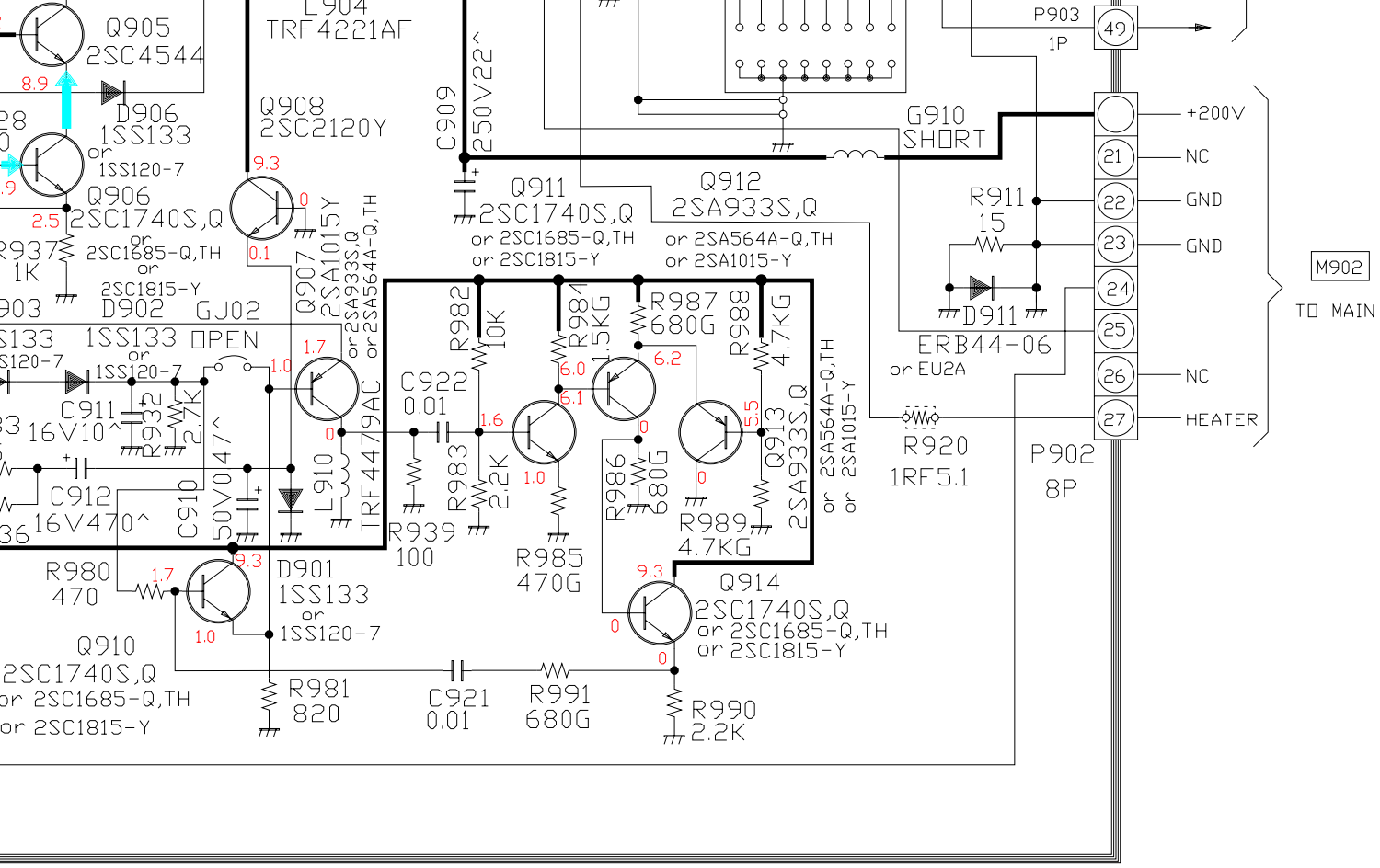


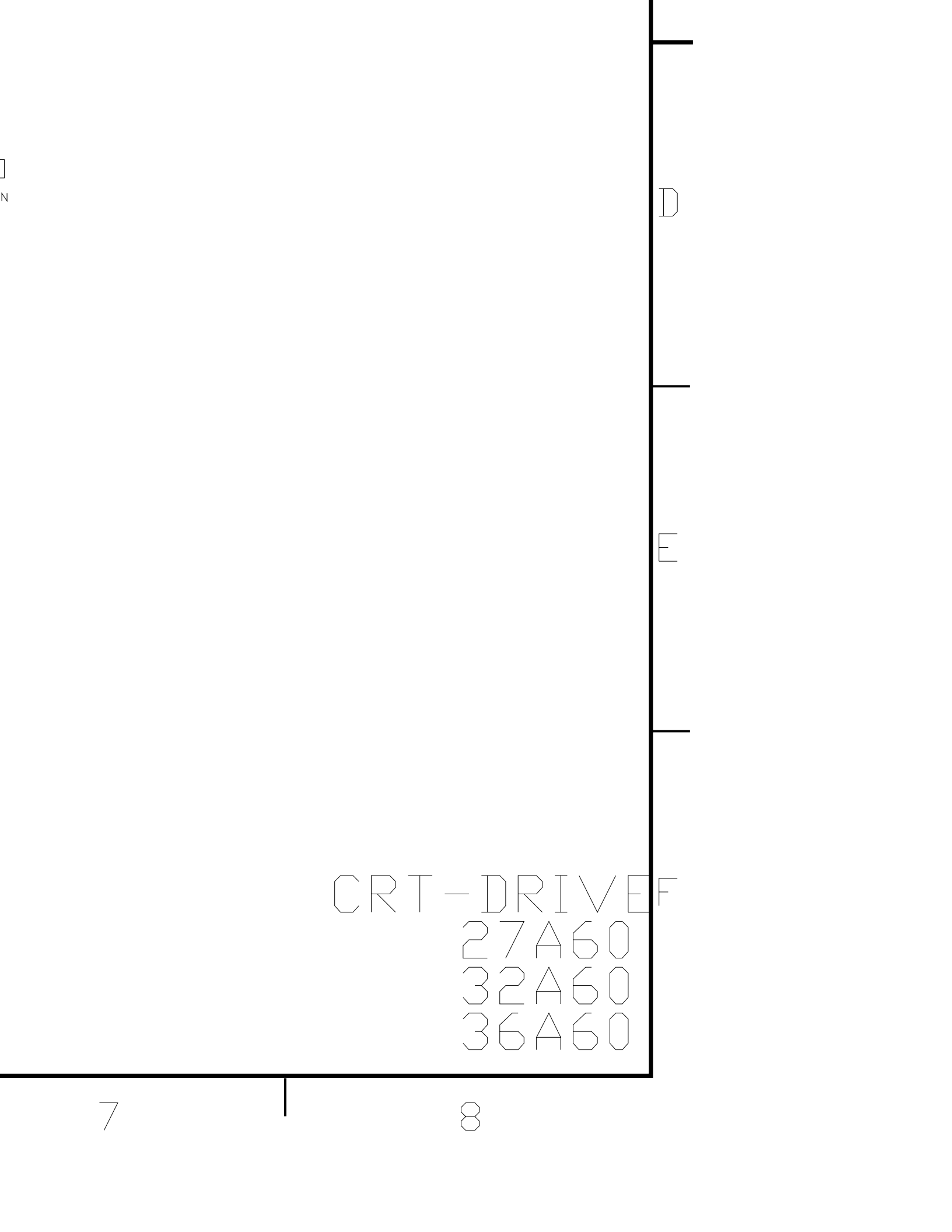

120V(p-p)[H]
130(p-p)[H]
33
32
31
P900
OPEN
GJ01
SHORT
C920
500V100
V901
R942
R960
5.6K
2R15K
L902
TRF4221AF
R905
100
165.9
Q901
2SC4544
8.4
D904
1SS133
or
1SS120-7
G905
SHORT
R901
1/2R1K
R902
1/2R1K
R903
1/2R1K
G906
SHORT
R943
5.6K
R961
2R15K
L903
TRF4221AF
Q902
2SC1740S,Q
or
2SC1685-Q,TH
or
2SC1815-Y
1.9
167.2
Q903
2SC4544
8.4
D905
or 1SS133
1SS120-7
Q904
2SC1740S,Q
or
2SC1685-Q,TH
or
2SC1815-Y
2.0
147
G907
SHORT
R944
5.6K
R962
2R15K
L904
TRF4221AF
Q905
2SC4544
8.9
D906
Q908
2SC2120Y
G4
GJ06
SHORT
C902
2KV1000
HV
FV
V901A
P903
1P
49
TO MAIN
T461
G910
+200V


7
8
A
B
C


D
E
F
1
2


TP-46B
D966 9.2
OPEN
D963
OPEN
R926
OPEN
R928
560
8.9
2.9
R929
300
R930
82
2.5
G945
SHORT
C907
390
R937
1K
R977
1.2K
C913
16V10^
G909
D903
R935
820
SHORT
1SS133
or1SS120-7
R934
390
D910
OPEN
G933
75
C911
16V10^
C912
16V470
R936
75
R980
470
G908
TRF4100AF
+9V
Q910
2SC1740S
or 2SC1685-
or 2SC1815-
P901
5P
15
16
17
18
19
R IN
G IN
B IN
+9V
GND
TO MAIN
M901


Q905
2SC4544
8.9
D906
1SS133
or
1SS120-7
Q906
2SC1740S,Q
or
2SC1685-Q,TH
or
2SC1815-Y
2.5
R937
1K
D902
GJ02
1SS133
OPEN
or
1SS120-7
C911
16V10^
R932
2.7K
C912
16V470^
C910
50V047^
L904
TRF4221AF
Q908
2SC2120Y
9.3
0.1
Q907
2SA1015Y
or 2SA933S,Q
or 2SA564A-Q,TH
1.7
1.0
0
L910
TRF4479AC
C909
250V22^
Q911
2SC1740S,Q
or 2SC1685-Q,TH
or 2SC1815-Y
Q912
2SA933S,Q
or 2SA564A-Q,TH
or 2SA1015-Y
G910
SHORT
P903
1P
49
R911
15
D911
ERB44-06
or EU2A
R920
1RF5.1
P902
8P
+200V
NC
GND
GND
NC
HEATER
M902
TO MAIN
R982
10K
R984
1.5KG
R987
680G
R988
4.7KG
C922
0.01
6.0
6.1
6.2
1.6
5.5
R983
2.2K
R986
680G
R989
4.7KG
Q913
2SA933S,Q
or 2SA564A-Q,TH
or 2SA1015-Y
R939
100
R985
470G
Q914
2SC1740S,Q
or 2SC1685-Q,TH
or 2SC1815-Y
R980
470
D901
1SS133
or
1SS120-7
Q910
2SC1740S,Q
or 2SC1685-Q,TH
or 2SC1815-Y
R981
820
C921
0.01
R991
680G
R990
2.2K


D
E
CRT-DRIVE
27A60
32A60
36A60
7
8